

# City of Tacoma Tacoma Public Library

# ADDENDUM NO. 1

DATE: September 21, 2023

# REVISIONS TO: Request for Bids Specification No. LB23-0178F Main Library Remodel

# NOTICE TO ALL BIDDERS:

This addendum is issued to clarify, revise, add to or delete from, the original specification documents for the above project. This addendum, as integrated with the original specification documents, shall form the specification documents. The noted revisions shall take precedence over previously issued specification documents and shall become part of this contract.

# **REVISIONS TO THE SUBMITTAL DEADLINE:**

The submittal deadline remains the same.

# **REVISIONS TO THE SPECIFICATIONS:**

Substitution Request – Miller Paint Company

Miller Paint Company products as proposed may be used in lieu of specified Benjamin Moore Products so long as the following criteria are met:

- All LEED criteria and documentation can be met as specified
- Colors to be color matched to Benjamin Moore specified colors; drawdowns required.

Substitution Request - fräsch! Acoustics Cloud and Baffles Fräsch! Acoustic ceiling clouds is an approved alternate product for use at the ceilings in lieu of

Basis of Design Acoufelt products so long as the following criteria are met:

- panel and baffle layout and acoustic performance as described in the contract documents can be replicated
- bid number allows architect to choose from the full palette of colors so the (9) specified shades can still be used where/how intended.
- All LEED criteria and documentation can be met as specified

If the above criteria cannot be met, bidder must provide basis of design product at no additional cost to owner.

Approved Vendor Request – Fire alarm

E -Squared systems may be used as an approved vendor.

ADD Section 01 11 10 Summary of Hazardous Materials Work marked Addendum 1

ADD Hazardous Material Report



Remove and replace 01 91 13 – General Commissioning Requirements with 01 91 13 – General Commissioning Requirements marked Addendum 1.

Remove and replace 26 01 26 Maintenance Testing for Elec with 26 01 26 Maintenance Testing for Elec marked Addendum 1.

Remove and replace 26 05 00 Common Work Results for Elec with 26 05 00 Common Work Results for Elec marked Addendum 1.

# LIST OF PRE-BID WALK ATTENDEES:

Attached at the end of this addendum.

# **REVISIONS TO THE DRAWINGS:**

Revised electrical sheets with added clarifications and notes for coordination and integration. See clouded areas.

Remove and replace E0.00 with attached E0.00 marked Addendum 1.

Remove and replace E0.01 with attached E0.01 marked Addendum 1.

Remove and replace E3.01 with attached E3.01 marked Addendum 1.

Remove and replace E3.02 with attached E3.02 marked Addendum 1.

Remove and replace E3.03 with attached E3.03 marked Addendum 1.

Remove and replace E5.00 with attached E5.00 marked Addendum 1.

Remove and replace E5.01 with attached E5.01 marked Addendum 1.

Remove and replace E5.02 with attached E5.02 marked Addendum 1.

# **QUESTIONS AND ANSWERS:**

- Question 1: There is a signature block on page 14 of 20 in the General Provisions. Is this page alone and/or the entirety of the 20-page General Provisions to be submitted with our bid or only after the project is awarded?
- Answer 1: This is dealt with after the project is awarded. It does not need to be signed at time of submittals
- Question 2: Please confirm that all the demolition work on the second floor is to be included in the library renovation bid item. Reference AD102, M102 and E1.02



- Answer 2: All demolition work in the contract documents is be included in the contractor's bid price. Allocation of demolition costs of existing library elements can be allocated to "Scope A Library Improvements"
- Question 3: Specification section 15 00 00/1.3 D. is conflicting "Provide separate metering; reimburse Owner for cost of energy used. The Owner will pay for power used. Take measures to conserve energy." We assume the owner is paying for power.
- Answer 3: Owner will pay for power during construction. Specification section 15 00 00 does not exist in this project
- Question 4: Requesting the Equity in Contracting Utilization form submission be extended to be due within one hour of bid submission.
- Answer 4: The form is required at time of bid submittal.
- Question 5: General commissioning requirements (section 01 91 13) indicates CxA will be a third party hired by owner. Spec section 20 08 00 Commissioning of Mechanical implies this is to be provided by contractor. Please clarify.
- Answer 5: General commissioning is to be provided by the contractor. The owner has contracted with a separate commissioning agent for Enhanced Commissioning as required by LEED. Revised and clouded specification attached.
- Question 6: Where there is a common wall between a Tenant Improvement space and a Library Improvement space, which bid item is he wall and everything within the wall to be included? For example between Room 230 and 209, or 208 ad 200?
- Answer 6: Common walls demising library space from other areas can be bid in "Scope A Library Improvements"
- Question 7: Please provide a complete description of work for alternate 1 Carnegie restroom remodel.

\*The summary of work does not clearly define the alternate scope, and there is no section 12300 Alternates typically provided to describe the alternates and base bid differences.

\*There is no architectural demo plan showing the alternate demo, and AD103 only shows the removal of plumbing fixtures to be replaced under the base bid.

\*Is the existing wall and floor tile being replaced or patched, or removed or a combination?

\*Plumbing demo plan M101 shows removal of fixtures but does not differentiate between base bid demo and alternate 1 demo.

\*Plumbing plan M303 shows the new alternate 1 configuration and fixtures, but has no notation for the base bid configuration with replaced fixtures. \*Lighting plan E2.03 shows new lighting for the alternate layout but does not address it as an alternate. Demo plan E103 indicates removal of existing lighting, but there is no plan for new lighting if the alternate is not taken.



- Answer 7: Scope of work for alternate 1 includes the following. Revised drawings including demolition plan to follow in an upcoming addendum.
  - Remove existing walls, fixtures, doors, frames, toilet partitions, and tile finishes in existing toilet rooms as required to achieve new scope of work described in the contract documents.
  - Protect plumbing in place where it can be reused for toilets
  - Provide new full height walls and doors/frames as described in contract documents
  - Provide new wall tile to extent shown in interior elevations, A921
  - Provide new floor tile throughout toilet room area to extent shown on 1/A920
  - Provide all new plumbing fixtures
  - Provide all new lavatories and faucets
  - Provide all new toilet accessories

Scope of base bid vs alternates in plumbing plans will be further clarified in an upcoming addendum.

# Question 8: Can you please provide the pre bid meeting sign in sheet for the Library project? Was the meeting mandatory for GC's?

Answer 8: The prebid sign in sheet is attached. The meeting was not mandatory.

NOTE: Acknowledge receipt of this addendum by initialing the corresponding space as indicated on the signature page. Vendors who have already submitted their bid/proposal may contact the Purchasing Division at 253-502-8468 and request return of their bid/proposal for acknowledgment and re-submittal. Or, a letter acknowledging receipt of this addendum may be submitted in an envelope marked Request for Bids Specification No. LB23-0178F Addendum No. 1. The City reserves the right to reject any and all bids, including, in certain circumstances, for failure to appropriately acknowledge this addendum.

cc: Sam Benscoter / Tacoma Public Library

# CSI Form 1.5C

# SUBSTITUTION REQUEST (During the Bid Period)

						(Dui ing	the blu renou)
Project:	Tacoma Public Lil	orary Main Branch I	Renovation	Substitu	tion Request Number:		
				From:	Holly Davidson, Mill	er Paint Company	/
То:	Tina Elde, Senic	or Buyer, City of Ta	coma	Date:	September 1, 202	23	
				A/E Pro	ject Number:		
Re:	Paint Specificatio	on		Contrac	: For:		
Specifica	tion Title:Painti	ng and Caoting		Descr	ption: Interior Paint	Systems	for
Section:	09 90 00 2.4	Page: 3		Articl	e/Paragraph: 2.4 Mat	erials	
Proposed Manufact Trade Na	Substitution: M turer: Miller Paint me: Miler Paint C	liller Paint Products Addres	s, PPG Products s: <u>12812 Whitaker Wa</u>	ay Portland	Phone: Holly- Model No.:	425-457-0983 Ta	coma Store-253-473-022
Attached	data includes prod	uct description, sp	ecifications, drawing	s, photograp	ns, and performance a	nd test data adeq	uate for evaluation
Attached installatio	data also includes	a description of c	hanges to the Contrac	et Document	s that the proposed su	bstitution will re	quire for its proper
<ul> <li>Sam</li> <li>Prop</li> <li>Prop</li> <li>Prop</li> <li>Paya</li> <li>subs</li> </ul>	e maintenance serv posed substitution w posed substitution d ment will be made stitution.	tice and source of r will have no adverse loes not affect dime e for changes to	eplacement parts, as a e effect on other trade ensions and functional building design, incl	applicable, is s and will no l clearances. uding A/E	available. et affect or delay progr design, detailing, and	ess schedule. I construction co	sts caused by the
Submitte	d by:	Holly Davidson					
Signed by	Y: Holly David	lson					
Firm :	Mille	er Paint Company					
Address:	Co	rp Address 12812	Whitaker Way Portla	nd Tacoma	Store Address 525 S	Washington Str	eet Tacoma
Telephon	e:Holl	y Davidson/Archit	ectural Representati	ve 425-457-	983		
A/E's RE	EVIEW AND ACTI	ON					
Subst Subst Subst Subst	itution approved - N itution approved as itution rejected - Us itution Request reco	Make submittals in noted - Make subr se specified materi eived too late - Use	accordance with Spe nittals in accordance als. e specified materials.	cification Se with Specifi	ction 01 25 00 Substitu ation Section 01 25 00	ution Procedures. O Substitution Pro	cedures.
Signed by	y:					Date:	
Supportir	ng Data Attached:	Drawings	Product Data	Sam	ples 🗌 Tests	Reports	
© Copyrig 110 South This is not	ht 2007, Construction Union Street, Suite 1 an official CSI Const	n Specifications Instit 00, Alexandria, VA 2 truction Contract Adr	ute, Pag 22314 ninistration (CCA) Form	e 1 1. Please use C	SI's official CCA Forms	Forn	n Version: June 2004 CSI Form 1.5C project needs.

- A. Provide all paint and coating products used in any individual system from the same manufacturer; unless noted otherwise below.
- B. Paints:
  - 1. B-M: Benjamin Moore & Co: www.benjaminmoore.com.
  - 2. Tnemec: www.tnemec.com.
- C. Substitutions for products by manufacturers other than those listed above: See Section 016000 Product Requirements.

#### 2.4 MATERIALS

- A Interior paint systems:
  - 1. Paint interior surfaces in accordance with the following MPI Painting Manual designations.
  - 2. All painting and coating must mee LEED VOC content and emissions requirements.
  - 3. Acrylic-Enamel.
    - a. Substrate: Concrete, Concrete Masonry Units, Gypsum Board..
    - b. Benjamin Moore & Company:
      - 1) Primer: 046 Fresh Start 100% Acrylic Superior Primer. Ph Surfacer
      - 2) Top coat: 526 Aura Waterborne Satin (2 coats min.). Acro Pure Satin
    - c. Sherwin Williams:
      - 1) Primer: PrepRite ProBlock Interior/Exterior Latex Primer, B51-600 Series (4.0 mils wet, 1.4 mils dry).
      - Top Coat: Duration Home Interior Latex Satin, A97-1200 Series (4 mils wet, 1.6 mils dry per coat).
      - 3) Alternate Top Coat: S-W ProMar 200 HP Zero VOC Latex Eg-Shel, B20-1900 Series (4 mils wet, 1.7 mils dry per coat)
  - 4. Epoxy.
    - a. Substrate: Concrete, Concrete Masonry Units, Gypsum Board.
    - b. Benjamin Moore & Company:
      - 1) Primer: 253 Super Spec Latex Primer Sealer & Enamel Undercoat, 1.1 mils. Gripper
      - 2) Top coat: P43-86 Super Spec HP Acrylic Epoxy Semi-Gloss 1.0-2.0 mils. Pitt Glaze
    - c. Sherwin Williams:
      - Primer: Quick Dry Interior/Exterior Latex Stain Blocking Primer, B51W8670 (4 mils wet, 1.1 mils dry per coat).
      - 2) Top Coat: S-W Pro Industrial Water Based Catalyzed Epoxy Gloss B73-300 Series (5.0 mils wet, 2.0 mils dry per coat).
      - 3) Alternate Top Coat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Semi-Gloss, K46 Series (4.0 mils wet, 1.4 mils dry per coat).
  - 5. Urethane Finish.
    - a. Substrate: Ferrous, Non-Ferrous, and Zinc-Coated Metals:

- 1) Benjamin Moore & Company:
  - a) Primer: HP04 Ultra Spec HP Acrylic Metal Primer. 4020 DTM Primer
  - b) Top coat: M735 Super Spec HP Waterborne Urethane Semi-Gloss.
- 2) Sherwin Williams:
  - a) Primer: S-W Pro Industrial Pro-Cryl Universal Primer B66-1310 Series (5.0 mils wet, 1.9 mils dry).
  - b) Top Coat: S-W Pro Industrial Waterbased Acrolon 100, B65-720 Series (4.0 mils wet, 1.8 mils dry per coat). Sierra Beyond
- 6. Acrylic.
  - a. Substrate: Interior Ferrous Metal.
  - b. Sheen: Satin.
  - c. Sherwin Williams:
    - 1) Shop Primer: S-W Kem Kromik Universal Metal Primer B50 Series (6.0-8.0 mils wet, 3.3-4.4 mils dry per coat). 4020 DTM primer
    - 2) Primer: S-W Pro Industrial Pro-Cryl Universal Primer B66-1310 Series (5.0 mils wet, 1.9 mils dry).
    - 3) Top Coat: S-W Pro Industrial Eg-Shel Acrylic, B66-660 Series (6.0 mils wet, 2.2 mils dry per coat). Pitt Tech EP Satin DTM
- B. Exterior paint systems:
  - 1. Zinc Rich Epoxy Urethane.
    - a. Substrate: Ferrous Metal; typical steel; AESS.
    - b. Tnemec:
      - 1) Primer: Tnemec 94 H2O. Aquapon 97-670
      - 2) Intermediate: Tnemec 1075. Pitthane Ultra LS
      - 3) Finish Coat: Corotech V540 Waterborne Urethane, 2-2.5 mils dft. Pitthane Ultra LS

# 2.5 ACCESSORIES

- A. All accessory materials required by the manufacturer for a warrantable installation of the installed products in a manner that meets the Performance and Design Criteria.
- B. All accessory materials required to comply with EQ credit: Low Emitting Materials, Option 1 in accordance with Section 013515 LEED Certification Procedures.

# PART 3 - EXECUTION

- 1.1 EXAMINATION
  - A. Verify existing conditions meet the manufacturer's requirements before starting work.
  - B. Verify products have been stored, and will be installed, in accordance with project's Construction Indoor Air Quality Management Plan specified in Section 013515 - LEED Certification Procedures.
- 1.2 PREPARATION

09 90 00 - 4

A. Prepare surfaces to receive work in accordance with manufacturer's instructions.

# 1.3 INSTALLATION

- A. General: Install all materials in accordance with manufacturer's instructions based on conditions present.
- B. All paints and coatings, including accessories, applied on site must comply with the VOC limits, emissions testing and Submittal requirements for IEQ Credit Low-Emitting Materials as specified in Section 013515 LEED Certification Procedures (LEEDv4)..

### 1.4 CLEANING

A. Dispose of all waste material in accordance with Section 017419 - Construction Waste Management and Disposal and project's Waste Management Plan.

### 1.5 PROTECTION

A. Protect installed work as required by the manufacturer to maintain product performance, design criteria, and warranty.

# 1.6 SCHEDULE

- A. Coats:
  - 1. Application: Primer + 2 coats.
- B. Interior Systems:
  - 1. Manufacturer: Benjamin Moore Aura or similar. Acro Pure
  - 2. Application: Interior paints, latex or high performance architectural latex. Zero VOC.
  - 3. Finish: Sheen TBD from flat to semi-gloss dependent on location/substrate.
  - 4. Location: Per finish schedule.

#### C. Exterior Systems:

#### \*note Tneme Zinc is not WB

- 1. Product: Zinc-Rich Urethane/Inorganic Water-Based Epoxy/ Polyurethane.
- 2. Manufacturers: Tnemec Tneme-Zinc w/ Unibond DF or approved equal.
- 3. Sheen: Eggshell
- 4. Coats: Shop Primer + 2 coats.
- 5. Location: Exterior steel; exterior fence and gates, steel at openings, canopies, railings and others as indicated on drawings. I would suggest PPG 4160 primer and

PPG Satin EP DTM Topcoat if these are previously painted

- D. Wood Finish on Stair Treads:
  - 1. Manufacturer: Bona as specified
  - 2. Product Line: Traffic HD Anti-Slip
  - 3. Finish: Clear.
  - 4. Sheen: Satin.
  - 5. Locations: New Feature Stair treads.

END OF SECTION



# Primer for Concrete, CMU PH SURFACER

(FORMERLY KRIL PRIMER SEALER)

ALKALI RESISTANT PRIMER 620011

# Interior/Exterior Masonry Primer

pH Primer/Surfacer is our acrylic penetrating pigmented primer/sealer suitable for exterior or interior use. pH Surfacer is our best primer for concrete and stucco surfaces with alkalinity resistance up to a pH of 13. It can also be used on a variety of above grade surfaces such as non-staining wood, plaster, wallboard, and fiber cement making it a great choice for new construction or for recoating commercial, multi-family, and residential homes.

	PRODUC	INFORMATION		,, , ,
Resin:	Acrylic	Weight Per Gal	llon: 1	1.4 lbs.
Color Range:	Whites, Off Whites, Pastels	Solids by Weig	<b>jht:</b> 5	4% ± 2%
Finish:	<5 @ 60° (MPI GL1)	Solids by Volu	<b>me:</b> 3	8% ± 2%
Drying Time:	To Touch: 1 hour	Recommended	Film W	Vet: 4 mils
<u>(70° F. &amp; 50%</u>	R.H.) To Recoat: 2 hours	Thickness:	D	ory: 1 mil
Clean Up:	Water	Practical Cove	rage: 3	00-400 Sq. Ft. Per Gallon
Sizes:	Quarts, Gallons, Fives	VOC:	<	:50 g/L*
Tint Bases: W	hite	*Maximum VOC	content for non-tinte	ed paint base is less than 50 g/L
62	20011	(ASTM D6886).	VOC content may in	crease after tinting product.
REGULATORY CO	OMPLIANCE			
South Coast Air Qua	lity Management District (SCAQMD)	GreenSeal GS-11 Star	ndard	
California Air Resoul	rces Board (CARB)		ana Annuavad	
Architectural and inc	OUDEA OF DEEDADATION	CDPH 1.2 Std. Emissi	ons Approved	TODOOATO
<u> </u>	SURFACE PREPARATION	R A L EXT	RECOMMENDED	TOPCOATS
General:	from the and the and from of loss a sink duck disk	Concrete, EXT	ERIOR	
All surfaces must be	firm, dry and cleaned free of loose paint, dust, dirt,	Stucco, Ev	Olution Exterior	· Evolution Interior
oll, grease, wax, cl	naik, rust, mildew of any other contamination of	Masonry, Ad	CILLILE EXLERIOR	Acro Pure / Acro HP
Condition that would Do gloop phiny ourf	a adversely affect the performance of the coating.	CMU, Fiber	II EXTERIOR	Promium Interior
voide	aces by lightly saliulity]. Repair clacks allu illi	Cement Board,		
+ See warni	ing for existing lead-based paint under Precautions			ACT MULER BAINT FOR MORE INFORMATION
New Surfaces:		UTHEN TOFCOATS MAT BE	AFFNUFNIAIE. CONIA	ACT MILLER FAINT FOR MORE INFORMATION.
Follow general surfa	ace preparation quidelines. New concrete or stucco			
must cure for 30 day	vs prior to coating. Moisture content should be less			
than 12 % as meas	ured with a moisture meter and the pH should be			
between 7 and 11. R	emove all laitance and efflorescence before priming			
with the appropriate	primer.			
Previously Painted	Surfaces:			
Follow general surfa	ace preparation guidelines. Remove loose or failing			
paint and spot prim	e bare areas or entire surface with the appropriate			
primer. Hard, gloss	y surfaces may require sanding and/or a bonding			
primer.				
Surfage and air temp	proturos should be between 25°E and 05°E during	Spraving and Paakralli	na rocommondod on	now flat work. To avoid lan marks
annlication. Humidity	v should be below 85%. Surface temperature should be	maintain a wet edge. K	lig recommended on Geen nroduct from fr	reezing.
at least 5°F above dev	w point.	maintain a not ougor i		002111g1
	APPLICATION		THINN	ING
Brush: Nvlo	on/Polyester Brush	Apply at can consist	tency. If thinnina	is necessary to maintain
Roller: 3/8	" – 3/4" Nap Synthetic Cover	workability, do not e	exceed one-half p	int of water per gallon. Stir
Airless Spray: .017	7"021" Tip Size	product thoroughly.		
PRECAUTIONS	·			
WARNING! If you scr	rape, sand, or remove old paint from any surface, yo	u may release lead dust	. LEAD IS TOXIC. E	XPOSURE TO LEAD DUST CAN CAUSE
SERIOUS ILLNESS, S	SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN	PREGNANT WOMEN SHO	OULD ALSO AVOID	EXPOSURE. Wear a NIOSH-approved
respirator to control	lead exposure. Carefully clean up with a wet mop or	HEPA vacuum. Before yo	u start, find out ho	w to protect yourself and your family
by contacting the U.	S. EPA/Lead Information Hotline at 1-800-424-LEAD	(5323) or log on to www	.epa.gov/lead.	
Avoid contact with e	eyes, skin and clothing. Do not take internally. Wash	thoroughly after handling	g. Close container	after each use. For additional safety
information, consult	the Material Safety Data Sheet for this product.			
USE	ONLY WITH ADEQUATE VENTILATION.	K	EEP OUT OF REAC	H OF CHILDREN.
WARRANTY				
Limited Warranty: N	Ailler Paint Company, Inc. warrants to the purchaser	that this product will pro	ovide satisfactory	performance when applied according
to label directions.	If this product does not perform to specifications, re	eturn unused portion alor	ng with sales recei	pt to place of purchase. As the sole
remedy to purchase	r, dealer will, at its option: provide additional prod	ict to correct affected ai	reas, replace with	product of equal value or refund the
purchase price paid	for this paint product. Failures caused by poor surf	ace preparation, imprope	er application or a	breakdown of the underlying surface
of previous paint fil	m are not covered by this warranty. THIS WARRAI	ITY SPECIFICALLY EXCL	UDES LABOR OR	COST OF LABOR OR INCIDENTAL OR

CONSEQUENTIAL DAMAGES ASSOCIATED WITH THE USE OF THIS PRODUCT.

DISPOSAL

Never pour leftover coating down any sink or drain – use up material on the job or seal can and store safely for future use. Do not incinerate closed containers. For specific disposal or recycle guidelines, contact your local waste management agency or district. Please re-use or recycle.



Top Coat for CMU, Concrete, Gypsum

# ACRO PURE®

# **INTERIOR SATIN 1104XX**

# Low-Odor Interior Wall Paint

Acro Pure is a wall coating system that is easy to use, easy to clean, and safer for the environment. Using an advanced Ultra-Low VOC resin formulated specifically for Miller Paint, Acro Pure creates a lasting finish that will stand up to the rigors of daily life. Acro Pure is formulated with an antimicrobial additive, which inhibits the growth of mold and mildew on the surface. A responsible alternative to conventional interior paints, it can be used anywhere a standard wall paint can be used. Acro Pure is a great choice in homes, commercial and industrial spaces, and healthcare environments.

PRODUCT	INFORMATION
Resin: Acrylic	Weight Per Gallon: 10.7 lbs.
Color Range: White & Custom Tints	Solids by Weight: 50% ± 2%
Finish: Satin, 10-20 @ 60° (MPI GL3)	<b>Solids by Volume:</b> 35.8% ± 2%
Drying Time: To Touch: 1 hour	Recommended Film Wet: 4 mils.
(70° F. & 50% R.H.) To Recoat: 2 hours	Thickness: Dry: 1.5 mils.
Clean Up: Water	Practical Coverage: 300-400 Sq. Ft. Per Gallon
Sizes: Quarts, Gallons, Fives	<b>VOC:</b> <6 g/L*
Tint Bases: White Medium Accent Neutral Super White	*Maximum VOC content for non-tinted paint base is less than 6 g/L
	(ASTM D6886). VOC content may increase after tinting product.
REGULATORY COMPLIANCE	
South Coast Air Quality Management District (SCAQMD)	GreenSeal GS-11 Standard
California Air Resources Board (CARB)	Health Product Declaration (HPD)
Architectural and Industrial Maintenance Coating (AIM - EPA)	CDPH 1.2 Std. Emissions Approved
SURFACE PREPARATION	RECOMMENDED PRIMERS
General:	Concrete, Kril Int/Ext Alkali Resistant Primer/Sealer 620011
All surfaces must be firm, dry and cleaned free of loose paint, dust,	Stucco, and Premium Super Seal HB Primer 225011
dirt, oil, grease, wax, chalk, rust, mildew or any other contamination	Masonry
or condition that would adversely affect the performance of the coating.	Concrete Kril Int/Ext Block Filler 481011
De-gloss sniny surfaces by lightly sanding T. Repair cracks and till	Block:
VOIDS. + See warning for evicting lead based point under Presentions	
See waining for existing leau-based paint under Frecautions.	Wood: All Purpose Int/Ext Stain Blocking Primer 470011
New Sullaces. Follow general ourfage propagation guidelings. New concrete or stugge	<ul> <li>Acrylic Enamel Undercoat 270011</li> </ul>
must cure for 30 days prior to costing. Moisture content should be less	
than 12 % as measured with a moisture meter and the nH should be	Ferrous Metal, Acrimetal DTM Low Sheen Primer/Finish 310210
hetween 7 and 11 Remove all laitance and efflorescence before	Galvanized All Purpose Int/Ext Stain Blocking Primer 470011
priming with the appropriate primer.	Metal, or
Previously Painted Surfaces:	Aluminum:
Follow general surface preparation guidelines. Remove loose or failing	Gypsum Premium PVA Interior Primer/Sealer 220011
paint and spot prime bare areas or entire surface with the appropriate	Wallboard: Premium Super Seal HB Interior Primer/Sealer 225011
primer. Hard, glossy surfaces may require sanding and/or a bonding	Acro Pure PVA Interior Primer/Sealer 210011
primer.	• Acrylitex MPI #50 Primer/Sealer 296017

OTHER PRIMERS MAY BE APPROPRIATE. CONTACT MILLER PAINT FOR MORE INFORMATION.

APPLICATION	THINNING
Brush: Nylon/Polyester Brush	Apply at can consistency. If thinning is necessary to maintain
Roller: 3/8" – 3/4" Nap Synthetic Cover	workability, do not exceed one-half pint of water per gallon. Stir
Airless Spray: .017"021" Tip Size	product thoroughly.

PRECAUTIONS

WARNING! If you scrape, sand, or remove old paint from any surface, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH-approved respirator to control lead exposure. Carefully clean up with a wet mop or HEPA vacuum. Before you start, find out how to protect yourself and your family by contacting the U.S. EPA/Lead Information Hotline at 1-800-424-LEAD (5323) or log on to www.epa.gov/lead.

Avoid contact with eyes, skin and clothing. Do not take internally. Wash thoroughly after handling. Close container after each use. For additional safety information, consult the Material Safety Data Sheet for this product.

#### USE ONLY WITH ADEQUATE VENTILATION.

**KEEP OUT OF REACH OF CHILDREN.** 

#### WARRANTY

Limited Warranty: Miller Paint Company, Inc. warrants to the purchaser that this product will provide satisfactory performance when applied according to label directions. If this product does not perform to specifications, return unused portion along with sales receipt to place of purchase. As the sole remedy to purchaser, dealer will, at its option: provide additional product to correct affected areas, replace with product of equal value or refund the purchase price paid for this paint product. Failures caused by poor surface preparation, improper application or a breakdown of the underlying surface of previous paint film are not covered by this warranty. THIS WARRANTY SPECIFICALLY EXCLUDES LABOR OR COST OF LABOR OR INCIDENTAL OR CONSEQUENTIAL DAMAGES ASSOCIATED WITH THE USE OF THIS PRODUCT.

#### DISPOSAL

Never pour leftover coating down any sink or drain – use up material on the job or seal can and store safely for future use. Do not incinerate closed containers. For specific disposal or recycle guidelines, contact your local waste management agency or district. Please re-use or recycle.



# SEAL GRIP® GRIPPER®

# 17-921XI Series

Architectural Coatings

# GENERAL DESCRIPTION

Our premium interior/exterior 100% acrylic primer is formulated to meet the performance requirements of the residential and commercial segments. *Seal Grip Gripper* Primer is especially formulated to block most stains -water, smoke, ink, markers, and tannin. *Seal Grip Gripper* Primer has exceptional adhesion to glossy surfaces. Also recommended as a whole house primer for use on properly prepared interior or exterior wood, masonry, plaster, wallboard, cement, brick, stucco, cement composition board, aluminum and wall coverings.

# RECOMMENDED SUBSTRATES

Aluminum Siding Brick Concrete Fiber Cement Fiberglass Gypsum Wallboard-Drywall Masonry MDO Board Plaster Stucco Vinyl Siding Wood

# CONFORMANCE STANDARDS

VOC compliant in all regulated areas MPI approved in categories #3, #6, #17, #39, and #137

# PRODUCT INFORMATION

17-921XIWhite (Tintable)17-922XIDeep Base\*

\*Must be tinted before use

Refer to the appropriate color formula book, automatic tinting equipment, and or computer color matching system for color formulas and tinting instructions.

# PACKAGING

Quart (946 mL) 1-Gallon (3.78 L) 5-Gallon (18.9 L) Not all products available in all sizes.

# FEATURES / BENEFITS

#### Features

Great hide Outstanding stain and tannin blocking Low VOC, <50 g/L Interior/Exterior Universal Formula Fast drying Excellent adhesion Mildew resistant coating

#### Benefits

Saves time and money; Better coverage in less coats Great at blocking out most stains - water, smoke, ink, markers, and more Nationally VOC compliant Use as a whole house primer on multiple substrates Topcoat can be applied in as little as one hour Adheres to glossy surfaces Mildew and fungal growth resistance on the paint film

#### Read Label and Safety Data Sheet prior to use. See other cautions on last page.

PPG Seal Grip Gripper Interior/Exterior 100% Acrylic Latex Primer

# PRODUCT DATA

PRODUCT TYPE: SHEEN: VOLUME SOLIDS\*: WEIGHT SOLIDS\*: WEIGHT/GALLON\*: VOC:

100% Acrylic Latex Low Sheen 40% +/- 2% 52% +/- 2% 10.5 lbs. (4.8 kg) +/- 0.2 lbs. (91 g) <50 g/L (0.4 lbs./gal.)

\*Product data calculated on product 17-921XI.

**COVERAGE:** Approximately 400 sq. ft. (37 sq. meters) per U.S. Gallon (3.78L) on smooth, nonporous surfaces.

Wet Film Thickness:	4.0 mils
Wet Microns:	102
Dry Film Thickness:	1.6 mils
Dry Microns:	41

Coverage figures do not include loss due to surface irregularities and porosity or material loss due to application method or mixing. Some colors, drastic color changes, or porous substrates may require more than one coat to achieve a uniform finish.

DRYING TIME:Dry time @ 77°F (25°C); 50% relative humidity.To Touch:30 minutesTo Recoat:1-2 hours

30 days

Drying times listed may vary depending on temperature, humidity, film build, color, and air movement. For example, product applied at 35°F (2°C) would require a minimum of 24 hours before recoat. Drying is important to stain-blocking properties. For maximum stain resistance, allow 24 hours before topcoating. If drying conditions are poor (low temperature, high humidity), longer drying times are required to achieve stain blocking.

**CLEANUP:** Clean tools with warm, soapy water.

**DISPOSAL:** Contact your local environmental regulatory agency for guidance on disposal of unused product. Do not pour down a drain or storm sewer.

FLASH POINT:

To Full Cure:

Over 200°F (93°C)

#### Architectural Coatings

PPG Seal Grip Gripper Interior/Exterior 100% Acrylic Latex Primer

# **GENERAL SURFACE PREPARATION**

Surface must be clean and dry. Remove dirt, mildew, grease and other surface contamination. Remove loose paint, excessive amounts of chalk, and efflorescence by wire brushing, scraping, sanding, and/or pressure washing. Repair all moisture problems. Blistering and peeling issues are commonly caused by moisture behind the paint film. Putty all nail holes, and caulk all cracks and open seams. Sand all rough, and patched surfaces. Sanding is not required if the surface is properly and thoroughly cleaned.

WARNING! If you scrape, sand, or remove old paint, you may release lead dust or fumes. LEAD IS TOXIC. EXPOSURE TO LEAD DUST OR FUMES CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a properly fitted NIOSH-approved respirator and prevent skin contact to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the USEPA National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead. In Canada contact a regional Health Canada office. Follow these instructions to control exposure to other hazardous substances that may be released during surface preparation.

**ALUMINUM SIDING and FIBERGLASS:** Aluminum siding and fiberglass may present potential adhesion problems. Prime prior to topcoating. Primer should be spot applied, allowed to cure overnight, then evaluated for adhesion. Check adhesion by applying a piece of masking tape. If adhesion is good, the application may proceed. If the coating peels off when the masking tape is removed, the surface must be scuff sanded prior to proceeding to ensure mechanical adhesion.

**BRICK**, **CONCRETE**, **MASONRY** and **STUCCO**: New concrete and masonry should cure for at least 7 days and preferably 30 days prior to priming and painting. The pH of the substrate must be less than 13 before priming. Painting glazed brick is not recommended due to potential adhesion problems.

**GYPSUM WALLBOARD-DRYWALL:** Nails or screws should be countersunk, and they along with any indentations should be mudded flush with the surface, sanded smooth and cleaned to remove any dust, then prime prior to painting the substrate.

**FIBER CEMENT:** Fiber cement board may present potential adhesion, alkali burn, and efflorescence problems. New board should be aged for at least 7 days and preferably 30 days prior to priming and painting. The pH of the substrate must be less than 13 and the moisture content must be less than 12% prior to priming and topcoating. All cracks and opens seams should be caulked to prevent water penetration. Pre-primed board from the manufacturer may not be uniformly or completely sealed. It is recommended that a primer be applied to ensure complete and uniform sealing prior to topcoating.

**MEDIUM DENSITY OVERLAY (MDO) BOARD:** Countersink all nails or screws and putty flush with the surface. Surface should be sanded smooth and cleaned to remove any dust or contaminates, then primed prior to painting.

**PLASTER:** Plaster, hardcoat, skim coat, or other alkaline surfaces should be allowed to cure for at least 7 days and preferably 30 days prior to priming.

**VINYL SIDING:** Vinyl siding may present potential adhesion problems. Primer should be spot applied, allowed to cure overnight, then evaluated for adhesion. If adhesion is good, the application may proceed. Check adhesion by applying a piece of masking tape. When the masking tape is removed, if the coating peels off, the surface must be scuff sanded prior to proceeding to ensure mechanical adhesion. Color selection for vinyl siding is limited. Do not paint vinyl siding with a topcoat color darker that the original to prevent potential warping due to heat absorption.

**WOOD:** Unpainted wood or wood in poor condition should be sanded smooth and wiped clean. Any knots or resinous areas must be primed before painting. Countersink all nails, putty flush with surface, then prime. Staining or tannin bleeding woods (like cedar or redwood) may require two coats. The first coat must be completely dry before re-coating. For optimum tannin blocking performance, allow the first coat to dry a full 24 hours prior to the application of a second coat.

# **RECOMMENDED PRIMERS**

Concrete Block (CMU)

# LIMITATIONS OF USE

Apply when air and surface temperatures are 35°F (2°C) and surface temperature is at least 5°F (3°C) above the dew point. For optimum application properties, bring material to at least 50°F (10°C) prior to application. Air and surface temperature must remain above 35°F (2°C) for the next 24 hours. Avoid painting late in the day when dew and condensation are likely to form or if rain or snow is expected. Do not apply in direct sunlight.

6-15XI

# LIMITATIONS OF USE (continued)

Vinyl siding and similar plastic composites should not be painted with a color darker than the original color. Painting vinyl siding or plastic composites with a darker color may cause them to warp. Color selection for use over vinyl siding is limited. For information, call 1-800-441-9695.

While this product provides a mildew resistant coating, growth may still occur if the substrate is not properly prepared prior to painting and/or if the substrate is consistently exposed to conditions conducive to mold, mildew, and algae.

PROTECT FROM FREEZING.

PPG Seal Grip Gripper Interior/Exterior 100% Acrylic Latex Primer

Architectural Coatings

# **APPLICATION INFORMATION**

Stir thoroughly before using and occasionally when in use. When using more than one can of the same color, intermix to ensure color uniformity. USE WITH ADEQUATE VENTILATION. KEEP OUT OF REACH OF CHILDREN. Read all label and Safety Data Sheet (SDS) information prior to use. SDS are available through our web site or by calling 1-800-441-9695.

**Application Equipment:** Apply with a high quality brush, roller, paint pad, or by spray equipment. Severe stains may require two coats of primer. Brushing is the preferred method of application over chalky substrates. If painting will be interrupted for more than 15 minutes, keep brushes and rollers wet by wrapping them in tinfoil or plastic wrap.

**Airless Spray**: Pressure 2000 psi; tip 0.015" - 0.021". Spray equipment must be handled with due care and in accordance with manufacturer's recommendation. High-pressure injection of coatings into the skin by airless equipment may cause serious injury.

**Brush:** Polyester/Nylon Brush **Roller:** 3/8" - 3/4" nap roller cover **Thinning:** Do not thin.

# Permissible temperatures during application:

Material:	35 to 90°F	2 to 32°C
Ambient:	35 to 90°F	2 to 32°C
Substrate:	35 to 90°F	2 to 32°C

# PRECAUTIONS

**WARNING! HARMFUL IF INHALED. HARMFUL IF SWALLOWED. CAUSES RESPIRATORY TRACT IRRITATION.** Do not breathe vapor or mist. Do not swallow. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Provide fresh air ventilation during and after application and drying. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this preparation. Use personal protective equipment as required. Note: These warnings encompass the product series. Prior to use, read and follow product-specific SDS and label information. FIRST AID: If swallowed, rinse mouth with water (only if the person is conscious). Call physician immediately. Do not induce vomiting unless directed to do so by medical personnel. If in eyes, rinse with water for 15 minutes. Check for and remove any contact lenses. If on skin, rinse well with water. Wash with soap and water. Get medical attention if irritation develops. If inhaled, remove to fresh air. Call physician immediately. Keep out of the reach of children. For workplace use, an SDS is available from your retailer or by calling (412) 492-5555. EMERGENCY SPILL INFORMATION: (412) 434-4515 (U.S.).

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For Interior Metals Epoxy System

December 4, 2019 (Revision of June 1, 2018)

# PITT-TECH PLUS 4020 PF

and for (6) Acrylic, Interior Fer

# DESCRIPTION

One-component, waterborne acrylic primer/finish

# **PRINCIPAL CHARACTERISTICS**

- Rust Inhibitive direct-to-metal (DTM) primer and finish
- · Ideal for structural steel, tank exteriors, piping and equipment
- Interior or Exterior steel, galvanized steel and masonry
- Flash rust resistant
- Fast drying properties

# **COLOR AND GLOSS LEVEL**

- Red, white
- Flat

# BASIC DATA AT 68°F (20°C)

Data for product			
Number of components	One		
Volume solids	44 ± 2%		
VOC (Supplied)	max. 0.8 lb/US gal (approx. 91 g/l)		
Temperature resistance	To 190°F 88°C)		
Recommended dry film thickness	2.2 - 3.5 mils (56 - 89 μm) depending on system		
Theoretical spreading rate	321 ft²/US gal for 2.2 mils (7.9 m²/l for 56 $\mu m)$		
Shelf life	At least 24 months when stored cool and dry		

Notes:

- See ADDITIONAL DATA Overcoating intervals
- See ADDITIONAL DATA Curing time

# **RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES**

#### <u>Steel</u>

- Coating performance is proportional to the degree of surface preparation. All previous coats must dry and free of contaminants
- · Remove all rust, dirt, moisture, grease or other contaminants from the surface
- Abrasive blast cleaning to SSPC SP-6 standards will give optimum performance
- Where abrasive blasting is not practical, power tool cleaning in accordance with SSPC SP-3 or hand tool cleaning to SSPC SP-2 requirements is acceptable



### Galvanizing

- Degrease to SSPC SP-1 and remove any white corrosion products by hand abrasion
- Galvanizing that has had at least 12 months of exterior weathering may be coated after power washing to remove all
   contaminants and white rust

### Concrete / Masonry

- Cure at least 30 days before painting
- pH must be 10.0 or lower
- Remove all rust, dirt, moisture, grease or other contaminants from the surface

# **Aluminum**

- Degrease to SSPC SP-1 and remove any white corrosion products by hand abrasion
- Self prime.

# Substrate temperature and application conditions

- Surface temperature during application should be between 50°F (10°C) and 100°F (38°C)
- Surface temperature during application should be at least 5°F (3°C) above dew point
- Ambient temperature during application and curing should be between 10°C (50°F) and 38°C (100°F)
- Relative humidity during application should be above 0% and below 85%

# <u>Warning</u>

Removal of old paint by sanding, scraping or other means may generate dust or fumes which contain lead. EXPOSURE TO LEAD DUST OR FUMES MAY CAUSE ADVERSE HEALTH EFFECTS, ESPECIALLY IN CHILDREN OR PREGNANT WOMEN. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted and approved (e.g., NIOSHapproved) respirator and proper containment and cleanup. For additional information, contact the USEPA/Lead Information Hotline at 1-800-424-LEAD or the regional Health Canada office

# SYSTEM SPECIFICATION

- Primers: Direct to metal. Fill block with latex block filler BLOXFIL 4000
- Topcoats: PITT-TECH PLUS 4020 PF, PITT-TECH PLUS 4216 HP

Note: Consult your sales representative for additional topcoat offerings

# **INSTRUCTIONS FOR USE**

• Agitate with a power mixer for 1 - 2 minutes until completely dispersed. Ensure good off-bottom mixing



# **Application**

- · Area should be sheltered from airborne particulates and pollutants
- Ensure good ventilation during application and curing
- Provide shelter to prevent wind from affecting spray patterns

#### **Material temperature**

Material temperature during application should be between 50°F (10°C) and 90°F (32°C)

#### Air spray

• Separate air and fluid pressure regulators and a moisture and oil trap in the main air supply line are recommended.

# **Recommended thinner**

No thinner should be added

Nozzle orifice Approx. 0.070 in (1.8 mm)

#### Airless spray

- 30:1 pump or larger
- Adjust pump pressure as needed

#### **Recommended thinner**

No thinner should be added

**Nozzle orifice** 0.015 – 0.017 in (approx. 0.38 – 0.43 mm)

Note: Adjust pump pressure as needed

#### **Brush/roller**

• Use a high quality natural bristle brush and/or solvent resistant, 3/8" nap roller. Ensure brush/roller is well loaded to avoid air entrainment. Multiple coats may be necessary to achieve adequate film-build

### **Recommended thinner**

No thinner should be added

# Cleaning solvent Soap and water

Note: All application equipment must be cleaned immediately after use



# **ADDITIONAL DATA**

Overcoating interval for DFT up to 2.0 mils (51 μm )				
Overcoating with	Interval	77°F (25°C)		
itself	Minimum	2 hours		
	Maximum	Extended		

Notes:

- Overcoating times valid for a relative humidity of 50%
- Drying times may vary depending on temperature, humidity, and air movement

Curing time for DFT up to 2.0 mils (51 µm )				
Substrate temperature	Dry to touch	Dry hard		
77°F (25°C)	30 minutes	2 hours		

Note: Curing times valid for a relative humidity of 50%

#### **Product Qualifications**

• Meets MPI Category #134, Primer, Galvanized, water based

# DISCLAIMER

· For professional use only. Not for household use

# SAFETY PRECAUTIONS

· For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets

#### **Danger**

Rags, steel wool or waste soaked with this product may spontaneously catch fire if improperly discarded. Immediately after use, place rags, steel wool or waste in a sealed water-filled metal container. Refer to www.pittsburghpaints.com, Spontaneous Combustion Advisory for additional information

### WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective and Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.



#### REFERENCES

•	CONVERSION TABLES	INFORMATION SHEET	1410
•	EXPLANATION TO PRODUCT DATA SHEETS	INFORMATION SHEET	1411
•	SAFETY INDICATIONS	INFORMATION SHEET	1430
•	SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD -	INFORMATION SHEET	1431
	TOXIC HAZARD		

#### WARRANTY

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shell life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer form recovery under this warranty.

#### LIMITATIONS OF LIABILITY

IN NO EVENT WILL PPG BE LIABLE UNDER ANY THEORY OF RECOVERY (WHETHER BASED ON NEGLIGENCE OF ANY KIND, STRICT LIABILITY OR TORT) FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO, ARISING FROM, OR RESULTING FROM ANY USE MADE OF THE PRODUCT. The information in this sheet is intended for guidance only and is based upon laboratory tests that PPG believes to be reliable. PPG may modify the information contained herein at any time as a result of practical experience and continuous product development. All recommendations or suggestions relating to the use of the PPG product, whether in technical documentation, or in response to a specific inquiry, or otherwise, are based on data, which to the best of PPG's knowledge, is reliable. The product and related information is designed for users having the requisite knowledge and industrial skills in the industry and it is the end-user's responsibility to determine the suitability of the product for its own particular use and it shall be deemed that Buyer has done so, as its sole discretion and risk. PPG has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. Therefore, PPG does not accept any liability arising from any loss, injury or damage resulting from such use or the contents of this information (unless there are written agreements stating otherwise). Variations in the application environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results. This sheet supersedes all previous versions and it is the Buyer's responsibility to ensure that this information is current prior to using the product. Current sheets for all PPG Protective & Marine Coatings Products are maintained at www.ppgpmc.com. The English text of this sheet shall prevail over any translation thereof.

#### **AVAILABILITY**

Packaging 1-gallon and 5-gallon kits

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### DESCRIPTION

One-component, int./ext. satin DTM industrial grade enamel

#### **PRINCIPAL CHARACTERISTICS**

- 100% waterborne acrylic enamel
- Excellent adhesion for true DTM performance
- Easy to apply
- Low odor during application
- Fast drying properties
- Flash rust resistant
- Good abrasion, chemical, and corrosion resistance
- Provides mildew resistant coating
- · Washable, scrub resistant
- Soap and water clean up

#### **COLOR AND GLOSS LEVEL**

- White and Pastel Base, Midtone Base, Neutral Base, Black
- Satin

Note: Certain colors, especially red, orange, and yellow may require additional coats for adequate hiding, especially if applied over primers with a significant color contrast

# BASIC DATA AT 68°F (20°C)

Data for product			
Number of components	One		
Volume solids	40 ± 2%		
VOC (Supplied)	max. 0.4 lb/US gal (approx. 50 g/l)		
Temperature resistance (Continuous)	To 200°F (93°C)		
Temperature resistance (Intermittent)	To 250°F (121°C)		
Recommended dry film thickness	2.0 - 4.0 mils (50 - 100 μm) depending on system		
Theoretical spreading rate	320 ft²/US gal for 2.0 mils (7.9 m²/l for 50 μm)		
Shelf life	At least 36 months when stored cool and dry		

Notes:

- See ADDITIONAL DATA Overcoating intervals
- See ADDITIONAL DATA Curing time



# **RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES**

Coating performance is proportional to the degree of surface preparation. Refer to the application instructions for specifc
primers and intermediate coats for application and curing procedures. Ensure epoxies are free from amine blush prior to
overcoating. All previous coats must dry and free of contaminants. Adhere to all minimum and maximum topcoat times
for specific primers and intermediate coats. Aged epoxy coatings require abrading prior to applying the product. A test
patch over unknown coatings is recommended.

#### **Steel**

- Remove all rust, dirt, moisture, grease or other contaminants from the surface in accordance with SSPC SP-1
- Power tool clean in accordance with SSPC SP-3 or hand tool clean to SSPC SP-2 requirements. Alternately, abrasive blast to SSPC SP-7 requirements. Abrasive blasting to SSPC SP-6 or better is also allowable and will give the best possible system performance
- Note that a primer must be used on all bare metal substrates when using colors made from Midtone and Neutral bases
- When using as a DTM finish without a primer, a minimum of two coats is recommended for best corrosion resistance

#### Non-ferrous metals and galvanizing

- Remove oil or soap film with detergent or emulsion cleaner as per SSPC SP-1 and galvanizing requirements, then use a phosphatizing conversion coating
- Alternately, power tool clean to uniformly abrade the surface or lightly abrasive blast with a fine abrasive to produce a uniform and dense anchor profile of 1.0 – 2.0 mils (25 – 50 μm) in accordance with SSPC SP-16.
- Galvanizing that has had at least 12 months of exterior weathering may be coated after power washing to remove all contaminants and white rust
- Galvanized surfaces that have been passivated with a chromate treatment must be abrasive blasted. Coatings may not adhere to chromate sealed galvanizing if the chromates are not completely removed.

# Concrete / Masonry

- Clean concrete surface, abrasive blast per ASTM D4259 or acid-etch in accordance with ASTM D 4260
- Fill concrete voids with AMERCOAT 965 or AMERCOAT 114 A
- Clean masonry surfaces by ASTM D4261
- Fill masonry block with AMERLOCK 400 BF block filler or PPG 4-100XI acrylic block filler

#### <u>Wood</u>

- · Sand new bare wood to remove any surface contamination and surface cells
- · Remove oil spots, sap or pitch by wiping with 97-737 thinner
- Properly dispose of solvent rags to avoid spontaneous combustion hazard
- · A wood primer or a first coat of this product may be used to prime the surface
- To recoat primed wood, remove all dirt, grease, or oil with a cleaner. Rinse with clean water. Remove wax with a commercial de-waxer. Sand loose paint to a tight, adherent surface

#### Dry wall

• Tape all joints, fill cracks and nail holes with patching, paste or spackle; sand smooth. Remove all dust. Unsealed drywall will require at least 2 coats of this product



### Substrate temperature and application conditions

- Surface temperature during application should be between 40°F (4°C) and 120°F (49°C)
- Surface temperature during application should be at least 5°F (3°C) above dew point
- Ambient temperature during application and curing should be between 40°F (4°C) and 100°F (38°C)
- Relative humidity in excess of 85% will slow curing

#### Warning

Removal of old paint by sanding, scraping or other means may generate dust or fumes which contain lead. EXPOSURE TO LEAD DUST OR FUMES MAY CAUSE ADVERSE HEALTH EFFECTS, ESPECIALLY IN CHILDREN OR PREGNANT WOMEN. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted and approved (e.g., NIOSHapproved) respirator and proper containment and cleanup. For additional information, contact the USEPA/Lead Information Hotline at 1-800-424-LEAD or the regional Health Canada office

# SYSTEM SPECIFICATION

- Primers for concrete, masonry, stucco, plaster: 4-603XI, 4-808, AMERLOCK SERIES (concrete)
- Primers for CMU: 4-100XI, AMERLOCK 400BF, 6-15XI
- Primers for ferrous metal: self-priming, 90-1912 SERIES, METALHIDE 2000, 6-208, 7-852, AMERLOCK 2/400, DIMETCOTE 9 SERIES
- Primers for non-ferrous metals: self-priming, 90-1912 SERIES, 6-204, 6-208, 6-209
- Primers for drywall: 6-2, 9-900, 17-921XI
- Primers for Exterior Wood: 17-921XI

# **INSTRUCTIONS FOR USE**

• Agitate with a power mixer for 1 – 2 minutes until completely dispersed. Ensure good off-bottom mixing

#### **Application**

- · Area should be sheltered from airborne particulates and pollutants
- · Avoid combustion gases or other sources of carbon dioxide that may promote ambering of light colors
- · Ensure good ventilation during application and curing
- Provide shelter to prevent wind from affecting spray patterns
- Avoid exterior painting late in the day or when dew or condensation are likely to form or if rain is expected

#### **Material temperature**

Material temperature during application should be between 50°F (10°C) and 90°F (32°C)



#### <u>Air spray</u>

Use standard conventional equipment

Recommended thinner Tap water

**Volume of thinner** 0 - 5%

Nozzle orifice Approx. 0.070 in (1.8 mm)

**Nozzle pressure** 0.3 - 0.5 MPa (approx. 4 - 5 bar; 50 - 70 p.s.i.)

Note: Overthinning may result in inadequate film thickness and subsequent pinpoint rusting

# <u>Airless spray</u>

• 28:1 pump or larger

Recommended thinner Tap water

**Volume of thinner** 0 - 5%

**Nozzle orifice** 0.013 – 0.017 in (approx. 0.33 – 0.43 mm)

Note: Overthinning may result in inadequate film thickness and subsequent pinpoint rusting

#### **Brush/roller**

• Use a high quality polyester/nylon brush and/or a high quality 3/8" nap roller. In hot or dry conditions, layoff lightly rolling with 3/8" nap roller cover. Multiple coats may be required to achieve specified film thickness

#### **Recommended thinner**

Tap water

# Volume of thinner

0 - 5%

Note: Overthinning may result in inadequate film thickness and subsequent pinpoint rusting



# **Cleaning solvent**

Soap and water

# **ADDITIONAL DATA**

Overcoating interval for DFT up to 2.0 mils (51 μm )						
Overcoating with	Interval	40°F (4°C)	50°F (10°C)	70°F (21°C)	90°F (32°C)	
itself	Minimum	1 hour	1 hour	45 minutes	30 minutes	
	Maximum	Unlimited	Unlimited	Unlimited	Unlimited	

#### Notes:

- Overcoating times valid for a relative humidity of 50%
- Drying times may vary depending on temperature, humidity, and air movement

Curing time for DFT up to 2.0 mils (51 µm )			
Substrate temperature	Dry to touch	Dry to handle	
40°F (4°C)	30 minutes	1 hour	
50°F (10°C)	30 minutes	1 hour	
70°F (21°C)	20 minutes	45 minutes	
90°F (32°C)	10 minutes	30 minutes	

Note: Curing times valid for a relative humidity of 50%

# **Product Qualifications**

- Meets MPI Category #151, Light Industrial Coating, Interior, Water Based (MPI Gloss Level 3)
- Meets MPI Category #151 X-Green™, Light Industrial Coating, Interior, Water Based (MPI Gloss Level 3)
- Meets MPI Category #161, Light Industrial Coating, Exterior, Water Based (MPI Gloss Level 3)

# DISCLAIMER

# SAFETY PRECAUTIONS

• For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets

# WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective and Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.



#### REFERENCES

•	CONVERSION TABLES	INFORMATION SHEET	1410
•	EXPLANATION TO PRODUCT DATA SHEETS	INFORMATION SHEET	1411
•	SAFETY INDICATIONS	INFORMATION SHEET	1430
•	SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD -	INFORMATION SHEET	1431
	TOXIC HAZARD		

#### WARRANTY

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shell life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer form recovery under this warranty.

#### LIMITATIONS OF LIABILITY

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# **AVAILABILITY**

#### **Packaging**

1-gallon and 5-gallon containers

Product codes	Description
90-1710	White and Pastel Base
90-1720	Midtone Base*
90-1740	Neutral base*
90-1753	Black

Note: \* Must be tinted

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# PITT-GLAZE® WB1

Architectural Coatings

# GENERAL DESCRIPTION

*Pitt-Glaze* WB1 is the only zero-VOC\* single-component epoxy that delivers high performance durability for high-traffic spaces. Recommended for healthcare, education, manufacturing, and correctional facilities in hallways, bathrooms, locker rooms, warehouses and more. USDA-certified for incidental food contact, making it suitable for cafeterias and food processing plants.

\*Colorants added to this base paint may increase VOC level significantly depending on color choice.

# RECOMMENDED SUBSTRATES

Aluminum Concrete Concrete/Masonry Block Ferrous Metal Galvanized Steel Gypsum Wallboard-Drywall Plaster Wood

# FEATURES / BENEFITS

- The only zero-VOC\* pre-catalyzed epoxy available; ideal for green builds and occupied spaces
- Single-component, is ready to use and efficient
- Delivers exceptional durability for high-traffic areas in commercial and institutional spaces
- Resistant to chemicals, stains, scuffs, impact, and abrasion to extend the repaint cycle
- Provides resistance to mildew, fungus and mold on the dry paint film, in high moisture areas
- Resistant to damage from institutional cleaning chemicals

\*Colorants added to this base paint may increase VOC level significantly depending on color choice.

# CONFORMANCE STANDARDS

- VOC compliant in all regulated areas
- Pending GREENGUARD Gold Emissions Certified+
- Pending eligibility for LEED® v4.1 low-emitting credit+
- **Pending** qualification for CHPS low-emitting credit+
- Pending CDPH v1.2 2017 Emissions Standard criteria+
- Meets MPI High Performance 141
- Meets MPI Institutional 147
- Meets MPI Light Industrial 153
- Suitable for use in USDA-inspected facilities
- +Pending approvals

# Pitt-Glaze WB1 Interior High Performance Pre-Catalyzed Waterborne Epoxy Semi-Gloss

# PRODUCT DATA

PRODUCT TYPE: SHEEN: VOLUME SOLIDS\*: WEIGHT SOLIDS\*: WEIGHT/GALLON\*: VOC: Waterborne Epoxy Semi-Gloss, 45-60 @60° 40% +/- 2% 52% +/- 2% 10.4 lbs. (4.7 kg) +/- 0.2 lbs. (91 g) 0 g/L (0.0 lbs./gal.)\*\*

\*Product data calculated on product 16-1510. \*\*Colorants added to this base paint may increase VOC level significantly depending on color choice.

**COVERAGE:** Approximately 400 sq. ft. (37 sq. meters) per U.S. Gallon (3.78L) on smooth, nonporous surfaces.

Wet Film Thickness:	4.0 mils (minimum)
Wet Microns:	102
Dry Film Thickness:	1.6 mils (minimum)
Drv Microns:	41

Coverage figures do not include loss due to surface irregularities and porosity or material loss due to application method or mixing. Some colors, drastic color changes, or porous substrates may require more than one coat to achieve a uniform finish.

DRYING TIME:	Dry time @ 77°F (25°C); 50% relative humidity.
To Touch:	30-60 minutes
To Recoat:	2-4 hours
To Full Cure:	30 days

Drying times listed may vary depending on temperature, humidity, color, film build, and air movement. Wait at least 30 days after painting before cleaning the surface with a non-abrasive, mild cleanser. Very deep colors may require longer to fully cure.

CLEANUP: Clean tools with warm, soapy water.

**DISPOSAL:** Contact your local environmental regulatory agency for guidance on disposal of unused product. Do not pour down a drain or storm sewer.

Over 200°F (93°C)

PRODUCT IN	FORMATION
16-1510	White & Pastel Base
16-1520	Midtone Base*
16-1540	Neutral Base*

\*Must be tinted before use. Refer to the appropriate color formula book, automatic tinting equipment, and or computer color matching system for color formulas and tinting instructions.

PERFORMANCE DATA Results Property Test Method Impact Resistance (Forward - inch-pounds) **ASTM D2794** 70 Scrub Resistance (Abrasive Medium with Shim, Cycles to Failure) **ASTM D2486** >600 Adhesion (Method B - Cross-Hatch) **ASTM D3359** 5B Abrasion Resistance (CS-10 Wheel w/1kg wt.) **ASTM D4060** 100 mg loss

FLASH POINT:

Read Label and Safety Data Sheet prior to use. See other cautions on last page.

Pitt-Glaze WB1			16-1510 Series
Architectural Coatings	Pitt-G	laze WB1 Interior High Performance Pre-Catalyzed Wa	terborne Epoxy Semi-Gloss
CHEMICAL RESISTA\NCE			
ASTM D1308 Chemical Resistance	Results	ASTM D1308 Cleaning Chemical Resistance	Results
Acid (10% hydrochloric acid)	Excellent	Oxivir® tb	Excellent
Acid (5% phosphoric acid)	Excellent	Shockwave™	Excellent
Acid (50% sulfuric acid)	Excellent	Concrobium®	Excellent
Acid (10% Acetic acid)	Excellent	Bleach	Excellent
Base (25% sodium hydroxide)	Excellent	Lysol®	Excellent
Motor Oil/Vegetable Oil	Excellent	Fantastik®	Excellent
Ethanol/ Methanol	Excellent	Formula 409®	Excellent
Mineral Spirits	Excellent	Ammonia	Excellent*
Distilled Water	Excellent		* After 28-day cure
GENERAL SURFACE PREP	ARATION		

Surface must be clean and dry. Remove all loose, peeling paint, dirt, grease, and any other surface contaminants. Putty all nail holes and caulk all cracks and open seams. Sand all glossy, rough, and patched surfaces. Plaster, concrete, and masonry surfaces must be completely dry, free of efflorescence, and allowed to cure for 30 days prior to painting. Prime all bare wood, drywall, plaster, masonry, metal, and porous surfaces with an appropriate primer.

WARNING! If you scrape, sand, or remove old paint, you may release lead dust or fumes. LEAD IS TOXIC. EXPOSURE TO LEAD DUST OR FUMES CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a properly fitted NIOSH-approved respirator and prevent skin contact to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the USEPA National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead. Follow these instructions to control exposure to other hazardous substances that may be released during surface preparation.

**ALUMINUM:** This substrate may present potential adhesion problems. Any coating applied directly to aluminum should be spot applied, allowed to cure overnight, and then evaluated for adhesion. If adhesion is good, the application may proceed.

**CONCRETE:** New concrete and masonry should cure for at least 30 days and preferably 90 days prior to priming and painting. The pH of the substrate must be less than 10 before priming with an alkali resistant primer. Painting glazed brick is not recommended due to potential adhesion problems.

**CONCRETE/MASONRY BLOCK:** Mortar should cure for at least 30 days and preferably 90 days prior to painting. Fill block with an appropriate block filler. Surfaces previously coated with water thinned cement-based paint must be prepared with extra care. If the material appears to be adhering tightly, a masonry sealer may be applied to seal the surface. Check adhesion by applying a piece of masking tape. If the sealer peels off and has loose particles, remove all chalking or crumbling material, re-seal and re-check adhesion.

**FERROUS METAL:** The surface must be cleaned thoroughly to remove any dust, rust, and surface contaminants, and then primed with a metal primer.

**GALVANIZED STEEL:** Caution must be used when selecting coatings for use on all galvanized metal surfaces. These substrates may have a factory-applied stabilizer, which is used to prevent white rusting during storage and shipping. Such stabilizers must be removed by either brush blasting, sanding or chemical treatment prior to priming.

**GYPSUM WALLBOARD-DRYWALL:** Nails or screws should be countersunk, and they along with any indentations should be mudded flush with the surface, sanded smooth and cleaned to remove any dust, prior to priming and painting the substrate.

**PLASTER:** Plaster, hardcoat, skim coat, or other alkaline surfaces should be allowed to cure for at least 30 days prior to priming with an alkali resistant primer.

**WOOD:** Countersink all nails, putty flush with surface. Unpainted wood or wood in poor condition should be sanded smooth and wiped clean, then primed. Any knots or resinous areas must be primed before painting.

# RECOMMENDED PRIMERS

Aluminum Concrete Concrete/Masonry Block Ferrous Metal Galvanized Steel Gypsum Wallboard-Drywall Plaster Wood 4020, 4160, 4360, Self-priming 4-603XI, 17-921XI, Self-priming 6-7, 6-15XI 4020, 4160, 4360 4020, 4160, 4360 6-2, 6-4, 9-900, 12-900XI 4-603XI, 17-921XI, Self-priming 6-2, 9-900,12-900XI, 17-921XI, Self-priming

# PACKAGING

1-Gallon (3.78 L) 5-Gallon (18.9 L)

Not all products are available in all sizes.

# Pitt-Glaze WB1

Architectural Coatings

Pitt-Glaze WB1 Interior High Performance Pre-Catalyzed Waterborne Epoxy Semi-Gloss

# LIMITATIONS OF USE

FOR INTERIOR USE ONLY. Apply when air, surface and product temperatures are between 50°F (10°C) and 90°F (32°C).

Do not use on floors, in areas of saturating humidity, or on submerged surfaces.

#### PROTECT FROM FREEZING.

While this product provides a mildew resistant coating, growth may still occur if the substrate is not properly prepared prior to painting and/or if the substrate is consistently exposed to conditions conducive to mold, mildew, and algae. Examples of these conditions include, but are not limited to areas that are consistently damp with little to no direct sunlight.

# APPLICATION INFORMATION

Stir thoroughly before using and occasionally when in use. When using more than one can of the same color, intermix to ensure color uniformity. USE WITH ADEQUATE VENTILATION. KEEP OUT OF REACH OF CHILDREN. Read all label and Safety Data Sheet (SDS) information prior to use. SDS are available through our web site or by calling 1-800-441-9695.

Application Equipment: Apply with a high-quality brush, roller, paint pad, or by spray equipment.

**Airless Spray**: Pressure 1500 to 2000 psi; tip 0.015" to 0.021". Spray equipment must be handled with due care and in accordance with manufacturer's recommendation. High-pressure injection of coatings into the skin by airless equipment may cause serious injury.

Brush: Nylon/Polyester Brush Roller (nap roller cover): 3/8" - 3/4"

Thinning: Do not thin.

Permissible	temperatures during	application:
Material:	50 to 90°F	10 to 32°C
Ambient:	50 to 90°F	10 to 32°C
Substrate:	50 to 90°F	10 to 32°C

# PRECAUTIONS

WARNING! HARMFUL IF INHALED. HARMFUL IF SWALLOWED. Do not breathe vapor or mist. Do not swallow. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Provide fresh air ventilation during and after application and drying. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this preparation. Use personal protective equipment as required. Note: These warnings encompass the product series. Prior to use, read and follow product-specific SDS and label information. FIRST AID: If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting unless directed to do so by medical personnel. If in eyes, rinse with water for 15 minutes. Check for and remove any contact lenses. In case of contact, immediately flush skin with plenty of water while removing contaminated clothing and shoes. Get medical attention if irritation develops. If inhaled, remove to fresh air. Call physician immediately. Contains isothiazolinones. May cause allergic reaction. Keep out of the reach of children. For workplace use, an SDS is available from your retailer or by calling (412) 492-5555. EMERGENCY SPILL INFORMATION: (412) 434-4515 (U.S.).

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PPG Architectural Finishes, Inc. One PPG Place Pittsburgh, PA 15272 www.ppgpaints.com Technical Services 1-800-441-9695 Architect/Specifier 1-888-PPG-IDEA

PPG Architectural Coatings Canada Inc. 1550 rue Ampère, Suite 500 Boucherville (Quebec) J4B 7L4 16-1510 8/2023

top coat (5)

**ACRYLIC/URETHANE** 



# TECHNICAL DATA

# SIERRA PERFORMANCE<sup>™</sup> BEYOND<sup>™</sup> ACRYLIC ENAMEL

# DESCRIPTION AND USES

Rust-Oleum<sup>®</sup> Sierra Performance<sup>™</sup> Beyond<sup>™</sup> Acrylic Enamel is an industrial performance, low VOC, low HAP, very low odor, single component, water-based acrylic urethane.

This coating is designed for use on a primed or painted substrate. It is suitable for both interior and exterior applications. Suitable for doors, cabinets, trim, furniture, equipment, tanks, etc. The very low odor of this coating makes it ideal for use in schools, healthcare facilities, food service areas, office buildings, hotels or in any area where odors are an issue.

Beyond complies with USDA FSIS regulatory sanitation performance standards for food establishment facilities. This coating is impervious to moisture and easily cleaned and sanitized.

# PRODUCTS

1-Gallon	5-Gallon	<b>DESCRIPTION (S38 Satin Finish)</b>
208040	208041	White Pastel Tint Base
208042	208043	Tint Base
208044	365010	Deep Tint Base
208046	365011	Accent Tint Base
210479		Clear
208048		Black
238749	243754*	White
1-Gallon	5-Gallon	DESCRIPTION (S39 Gloss Finish)
208050	208051	White Pastel Tint Base
208052	208053	Tint Base
208054		Deep Tint Base
208056		Accent Tint Base
210491	210492*	Clear
208058		Black
238748	243755*	White
238750		Navy Gray
238751		Safety Blue
210493		Safety Red
210495		Safety Yellow

\*Made-To-Order only. Contact Rust-Oleum Customer Service for details

# COMPANION PRODUCTS

# **RECOMMENDED PRIMER**

For ferrous substrates: Metalmax<sup>®</sup> For non-ferrous substrates: Griptec<sup>™</sup>

# PRODUCT APPLICATION

# SURFACE PREPARATION

ALL SURFACES: Remove all dirt, grease, oil, salt and chemical contaminants by washing the surface with Krud Kutter<sup>®</sup> Cleaner Degreaser, commercial detergent or other suitable cleaner. Rinse thoroughly with fresh water and allow to fully dry.

STEEL: Scrape and wire brush or power tool clean to remove loose rust, scale, and deteriorated coatings in accordance to SSPC-SP-2 Hand Tool Cleaning or SSPC-SP-3 Power Tool Cleaning. Steel substrates must be primed with MetalMax Primer. Two coats of primer must be used if the substrate was prepared by abrasive blast cleaning.

PREVIOUSLY COATED: Previously coated surfaces must be sound and in good condition. Remove all dirt, grease, oil, salt and chemical contaminants by washing the surface with Krud Kutter<sup>®</sup> Cleaner Degreaser, commercial detergent or other suitable cleaner. Rinse thoroughly with fresh water and allow to fully dry. Smooth, hard, or glossy finishes should be scarified by sanding to create a surface profile. Beyond is compatible with most coatings, but a test patch is suggested.

# APPLICATION

Apply only when air and surface temperatures are between 50-100°F (10-38°C) and surface temperature is at least 5°F above dew point.

# TINTING

Beyond tint bases can be tinted with COLORTREND<sup>®</sup> PLUS<sup>™</sup> 808, COLORTREND<sup>®</sup> 888, Rust-Oleum 2030 Water-based Colorants or other high quality water-based or universal colorants. This product contains zero VOCs before tinting. Adding colorants may add VOCs. If used at the recommended levels, the VOC will not exceed 100 g/l.

# TINT BASE MAXIMUM COLORANT

1-Gallon	5-Gallon	DESCRIPTION
2 oz.	10 oz.	White Pastel Base
4 oz.	20 oz.	Tint Base
8 oz.	40 oz.	Deep Tint Base
12 oz.	60 oz.	Accent Tint Base

# ACRYLIC/URETHANE



# TECHNICAL DATA

# SIERRA PERFORMANCE<sup>™</sup> BEYOND<sup>™</sup> ACRYLIC ENAMEL

# PRODUCT APPLICATION (cont.)

# EQUIPMENT RECOMMENDATIONS

BRUSH: Use a good quality synthetic bristle brush. ROLLER: Use a good quality 3/8" synthetic nap roller cover.

AIR-ATOMIZE	ED SPRAY:		
Method	Fluid Tip	Fluid Delivery	Atomization
			Pressure
Pressure	0.055-0.070	12-16 oz./min	40-60 psi
Siphon	0.055-0.070		40-60 psi
HVLP (var.)	0.043-0.070	8-10 oz./min	10 psi at tip
AIRLESS SPRAY:			
Fluid Pressu	re Fluid T	ip Filt	er Mesh
2000-3000 ps	i 0.013-0	.017 100	)

**CAUTION:** Protect surrounding surfaces from over spray. Over spray can be wet or dry depending on height of work, weather, environmental conditions and application equipment. Wet over spray can adhere to unwanted surfaces. Dry over spray may be removed by wiping or washing. Always clean dry over spray from hot surfaces before fusing occurs as surface temperatures can be higher than

# THINNING

If needed thin with water. Do not exceed 4 fluid ounces per gallon.

# **CLEAN-UP**

Clean up with soap and water and dispose of all waste material in a proper manner and in accordance with local waste regulations. Consult with local environmental regulations for appropriate method of disposal and/or recycling of paint and empty container.

For chemical and corrosion resistance, see Rust-Oleum Industrial Brands Catalog (Form #275585).

# PERFORMANCE CHARACTERISTICS

# CONICAL FLEXIBILITY

METHOD: ASTM D522 RESULT: >33%

# IMPACT RESISTANCE (Direct)

METHOD: ASTM D2794 RESULT: >160 lbs.

# GLOSS AT 60°

METHOD: ASTM D523 RESULT: (Gloss) 70-85% RESULT: (Satin) 20-30%

# PENCIL HARDNESS

METHOD: ASTM D3363 RESULT: 3B

### **CROSSHATCH ADHESION (Direct to steel)**

METHOD: ASTM D3359 RESULT: 5B

# **ACCELERATED WEATHERING (% gloss retention)**

METHOD: ASTM D4587, QUV Type A bulb, 450 hours RESULT: 93% gloss retention (Gloss Black)

#### WATER PERMEABILITY

METHOD: ASTM D1653 @ 73°F and 50% RH RESULT: 5-6

# FLAME SPREAD INDEX

METHOD: ASTM E84-20 RESULT: Class A

# SMOKE SPREAD INDEX

METHOD: ASTM E84-20 RESULT: Class A

**NOTE:** The Beyond Clear finish may experience a temporary milky appearance after excessive exposure to water. It will diminish and the coating will recover as it dries out. This will not affect the integrity of the coating or compromise the service life.

**SP-10** 

# **ACRYLIC/URETHANE**



# **TECHNICAL DATA**

# SIERRA PERFORMANCE<sup>™</sup> BEYOND<sup>™</sup> ACRYLIC ENAMEL

# PHYSICAL PROPERTIES

		SATIN	GLOSS
Resin Type		Acrylic Urethane	Acrylic Urethane
Pigment Type		Varies with color	Varies with color
Solvents		Water	Water
Woight	Per Gallon	9.2-10.6 lbs.	8.7-10.5 lbs.
Weight	Per Liter	1.1-1.3 kg	1.0-1.3 kg
Solido	By Weight	37-52%	46-51%
Solids	By Volume	30-36%	36-38%
Volatile Organic Con	npounds	<50 g/l**	<50 g/l**
Recommended Dry Film Thickness (DFT) Per Coat		1-3 mils (25-75µ)	1-3 mils (25-75µ)
Wet Film to Achieve DFT		3-9 mils (75-225µ)	3-8 mils (75-200µ)
Practical Coverage at I DFT (assumes 15% ma	Recommended aterial loss)	135-490 sq. ft./gal. (3.3-12.1 m²/l)	165-520 sq. ft./gal. (4.1-12.8 m²/l)
Dry Times at 70-80°F	Tack-free	30 minutes	30 minutes
Relative Humidity	Recoat	1-4 hours	1-4 hours
Dry Heat Resistance	1	200°F (93°C)	200°F (93°C)
Shelf Life		3 years	3 years
Storage		PROTECT FROM FREEZING. IF PRODUCT SHOULD FREEZE, ALLOW THE MATERIAL TO WARM UP AND REMAIN NORMAL ROOM TEMPERATURE FOR 48 HOURS PRIOR TO USE. MIX BY HAND STIRRING.	DO NOT ALLOW TO FREEZE.
Safety Information		For additional information, see SDS	

Calculated values are shown and may vary slightly from the actual manufactured material.

\*\* Measured by ASTM D6886. Tinting with some colorants may add minor amounts of VOC.

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Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, Illinois 60061

Phone: 877·385·8155 www.rustoleum.com/industrial **SP-10** 

# DESCRIPTION

Three-component, zinc rich epoxy

#### **PRINCIPAL CHARACTERISTICS**

- >90% zinc in dry film
- · Provides outstanding corrosion resistance
- Fast dry times for rapid topcoating

#### **COLOR AND GLOSS LEVEL**

- Reddish gray
- Flat

#### BASIC DATA AT 20°C (68°F)

Data for mixed product		
Number of components	Three	
Volume solids	65 ± 3%	
VOC (Supplied)	max. 3.4 lb/US gal (approx. 403 g/l)	
Recommended dry film thickness	3.0 - 5.0 mils (75 - 125 $\mu m$ ) depending on system	
Theoretical spreading rate	348 ft²/US gal for 3.0 mils (8.5 m²/l for 75 $\mu m)$	
Shelf life	Base: at least 36 months when stored cool and dry Hardener: at least 36 months when stored cool and dry	

Notes:

- See ADDITIONAL DATA Overcoating intervals
- See ADDITIONAL DATA Curing time

# **RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES**

 Coating performance is proportional to the degree of surface preparation. All previous coats must dry and free of contaminants

#### Steel

- Abrasive blast with an angular abrasive to an SSPC SP-6 cleanliness or higher for optimum performance. Achieve a surface profile of 1.0 – 3.0 mils (25 – 75 µm)
- Higher surface profiles up to 5 mils (125 µm) are acceptable, but the product must be applied in a thickness great enough to achieve a minimum of 2.5 mils (65 µm) dry film thickness
- Apply this product as soon as possible to prevent blasted surface from rusting.
- Keep moisture, oil, grease, or other organic matter off surface before coating
- · For touch up and repair, power tool cleaning in accordance with SSPC SP-11 is acceptable



### Substrate temperature and application conditions

- Surface temperature during application should be between 40°F (4°C) and 120°F (49°C)
- Surface temperature during application should be at least 5°F (3°C) above dew point
- Ambient temperature during application and curing should be between 40°F (4°C) and 100°F (38°C)
- Relative humidity during application and curing should not exceed 85%

Note: Product can be applied without accelerator at surface and air temperatures down to 40°F. Material temperature must be maintained at 60 to 90°F at the time of application. Due to the long curing time at this temperatures when accelerator is not used, it is recommended that temperatures above 50°F are expected within 12 hours of application. Coated surfaces should be protected from moisture until dry through time is reached.

# Warning

Removal of old paint by sanding, scraping or other means may generate dust or fumes which contain lead. EXPOSURE TO LEAD DUST OR FUMES MAY CAUSE ADVERSE HEALTH EFFECTS, ESPECIALLY IN CHILDREN OR PREGNANT WOMEN. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted and approved (e.g., NIOSHapproved) respirator and proper containment and cleanup. For additional information, contact the USEPA/Lead Information Hotline at 1-800-424-LEAD or the regional Health Canada office

# SYSTEM SPECIFICATION

- Primers: Direct to metal, can be used to touch up inorganic zincs such as METALHIDE 2000
- Topcoats: PITTGUARD Epoxies, DURETHANE DTM, PITTHANE Ultra, AMERSHIELD, PSX 700, AMERCOAT450 H, AMERLOCK 2/400, AMERCOAT 385, AMERCOAT 370, AMERCOAT Epoxies

# **INSTRUCTIONS FOR USE**

#### Mix as packaged

• Pre-mix base component with a pneumatic air mixer at moderate speeds to homogenize the container. Add hardener to base and agitate with a power mixer for 1-2 minutes until completely dispersed. Add powder component slowly under agitation until fully mixed. Strain the mixture from one container to another through a 30 mesh filter/strainer to remove any undispersed lumps

Pot life 24 hours at 70°F (21°C)

# **Application**

- · Area should be sheltered from airborne particulates and pollutants
- Ensure good ventilation during application and curing
- Provide shelter to prevent wind from affecting spray patterns

#### Material temperature

Material temperature during application should be between 40°F (4°C) and 90°F (32°C)



# <u>Air spray</u>

- Separate air and fluid pressure regulators and a moisture and oil trap in the main air supply line are recommended.
- Use standard conventional equipment

Recommended thinner THINNER 91-25 (97-725)

**Volume of thinner** 0 - 5%

Nozzle orifice Approx. 0.070 in (1.8 mm)

Airless spray

45:1 pump or larger

# **Recommended thinner**

THINNER 91-25 (97-725)

# Volume of thinner

0 - 5%

Nozzle orifice 0.017 in (approx. 0.43 mm)

# **Brush/roller**

- Use a high-quality natural-bristle brush. Brush application is only recommended for small touch-up and/or repair areas. Roller application is not recommended
- · Ensure brush is well loaded to avoid air entrainment
- Multiple coats may be required to achieve proper film build and hiding with brush application

# **Recommended thinner**

THINNER 91-25 (97-725)

# Volume of thinner

0 - 5%

<u>Cleaning solvent</u> THINNER 90-58 (AMERCOAT 12)



# **ADDITIONAL DATA**

Overcoating interval for DFT up to 3.0 mils (75 μm)					
Overcoating with	Interval	40°F (4°C)	50°F (10°C)	70°F (21°C)	90°F (32°C)
Itself and recommended	Minimum	24 hours	12 hours	4 hours	2 hours
topcoats	Maximum	Unlimited	Unlimited	Unlimited	Unlimited

Note: Maximum interval is only unlimited when the surface is free from any contamination

Curing time for DFT up to 3.0 mils (75 μm)			
Substrate temperature	Dry to touch	Dry to handle	
40°F (4°C)	6 hours	24 hours	
50°F (10°C)	3 hours	12 hours	
70°F (21°C)	1 hour	4 hours	
90°F (32°C)	130 minutes	2 hours	

#### **Product Qualifications**

- SSPC Paint 20, Type II, Level 1
- RCSC Class B slip coefficient for high strength bolted connections
- Zinc dust meets ASTM D520 type 2 standards
- Meets MPI Category #20, epoxy zinc rich

# DISCLAIMER

• For industrial or professional use only

#### **SAFETY PRECAUTIONS**

- · For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- This is a solvent-borne paint and care should be taken to avoid inhalation of spray mist or vapor, as well as contact between the wet paint and exposed skin or eyes

#### Danger

Rags, steel wool or waste soaked with this product may spontaneously catch fire if improperly discarded. Immediately after use, place rags, steel wool or waste in a sealed water-filled metal container. Refer to www.pittsburghpaints.com, Spontaneous Combustion Advisory for additional information

# WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective and Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.



#### REFERENCES

•	CONVERSION TABLES	INFORMATION SHEET	1410
•	EXPLANATION TO PRODUCT DATA SHEETS	INFORMATION SHEET	1411
•	SAFETY INDICATIONS	INFORMATION SHEET	1430
•	SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD -	INFORMATION SHEET	1431
	TOXIC HAZARD		

#### WARRANTY

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer from recovery under this warranty.

#### LIMITATIONS OF LIABILITY

IN NO EVENT WILL PPG BE LIABLE UNDER ANY THEORY OF RECOVERY (WHETHER BASED ON NEGLIGENCE OF ANY KIND, STRICT LIABILITY OR TORT) FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO, ARISING FROM, OR RESULTING FROM ANY USE MADE OF THE PRODUCT. The information in this sheet is intended for guidance only and is based upon laboratory tests that PPG believes to be reliable. PPG may modify the information contained herein at any time as a result of practical experience and continuous product development. All recommendations or suggestions relating to the use of the PPG product, whether in technical documentation, or in response to a specific inquiry, or otherwise, are based on data, which to the best of PPG's knowledge, is reliable. The product and related information is designed for users having the requisite knowledge and industrial skills in the industry and it is the end-user's responsibility to determine the suitability of the product for its own particular use and it shall be deemed that Buyer has done so, as its sole discretion and risk. PPG has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. Therefore, PPG does not accept any liability arising from any loss, injury or damage resulting from such use or the contents of this information (unless there are written agreements stating otherwise). Variations in the application environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results. This sheet supersedes all previous versions and it is the Buyer's responsibility to ensure that this information is current prior to using the product. Current sheets for all PPG Protective & Marine Coatings Products are maintained at www.ppgpmc.com. The English text of this sheet shall prevail over any translation thereof.

# AVAILABILITY

#### Packaging

1-gallon and 5-gallon kits (Do not mix components of different kit sizes)

Product codes	Description
97-670A	Base
97-670B	Hardener
97-670Z	Zinc powder

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# PITTHANE® ULTRA LS

# DESCRIPTION

Two-component, low sheen aliphatic acrylic polyurethane

### **PRINCIPAL CHARACTERISTICS**

- · Low sheen topcoat with unlimited recoatability
- Outstanding weather resistance with excellent color and gloss retention
- Tough and flexible coating
- · Can be applied and cured at low temperatures

### **COLOR AND GLOSS LEVEL**

- Industrial White, Light Tint Base, Neutral Tint Base
- Low sheen

# BASIC DATA AT 68°F (20°C)

Data for mixed product		
Number of components	Two	
Volume solids	67 ± 3%	
VOC (Supplied)	max. 2.0 lb/US gal (approx. 240 g/l)	
Temperature resistance (Continuous)	To 200°F (93°C)	
Temperature resistance (Intermittent)	То 350°F (177°С)	
Recommended dry film thickness	2.0 - 4.0 mils (50 - 100 μm) depending on system	
Theoretical spreading rate	537 ft²/US gal for 2.0 mils (13.2 m²/l for 50 $\mu m)$	
Shelf life	Base: at least 36 months when stored cool and dry Hardener: at least 36 months when stored cool and dry	

#### Notes:

- See ADDITIONAL DATA Overcoating intervals
- See ADDITIONAL DATA Curing time
- Discoloration will occur at high temperatures

# **RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES**

Coating performance is proportional to the degree of surface preparation. Refer to the application instructions for specifc
primers and intermediate coats for application and curing procedures. Ensure epoxies are free from amine blush prior to
overcoating. All previous coats must dry and free of contaminants. Adhere to all minimum and maximum topcoat times
for specific primers and intermediate coats. Aged epoxy coatings require abrading prior to applying the product. A test
patch over unknown coatings is recommended.


## Substrate temperature and application conditions

- Surface temperature during application should be between 20°F (-7°C) and 140°F (60°C)
- Ambient temperature during application and curing should be between 20°F (-7°C) and 100°F (38°C)
- Surface temperature during application should be at least 5°F (3°C) above dew point
- Relative humidity during application should not exceed 85%

## **Warning**

Removal of old paint by sanding, scraping or other means may generate dust or fumes which contain lead. EXPOSURE TO LEAD DUST OR FUMES MAY CAUSE ADVERSE HEALTH EFFECTS, ESPECIALLY IN CHILDREN OR PREGNANT WOMEN. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted and approved (e.g., NIOSHapproved) respirator and proper containment and cleanup. For additional information, contact the USEPA/Lead Information Hotline at 1-800-424-LEAD or the regional Health Canada office

## SYSTEM SPECIFICATION

· Apply over various PPG epoxy primers or compatible existing coatings

## **INSTRUCTIONS FOR USE**

## Mixing ratio by volume: base to hardener 87.5:12.5 (7:1)

• Pre-mix pigmented components with a pneumatic air mixer at moderate speeds to homogenize the container. Add hardener to base and agitate with a power mixer for 1–2 minutes until completely dispersed

## Pot life

3 hours at 70°F (21°C)

Note: See ADDITIONAL DATA - Pot life

### **Application**

- Area should be sheltered from airborne particulates and pollutants
- Ensure good ventilation during application and curing
- · Provide shelter to prevent wind from affecting spray patterns
- · Protect from moisture until dry through time is reached

### **Material temperature**

Material temperature during application should be between 40°F (4°C) and 90°F (32°C)



## Air spray

- Use standard conventional equipment
- A moisture and oil trap in the main line is essential. Product is sensitive to moisture contamination

## **Recommended thinner**

THINNER 21-06 (97-727) or THINNER 50-48 (AMERCOAT 923) or THINNER 21-25 (AMERCOAT 101)

Volume of thinner 0 - 10%

Nozzle orifice Approx. 0.070 in (1.8 mm)

## <u>Airless spray</u>

• 28:1 pump or larger

## **Recommended thinner**

THINNER 21-06 (97-727) or THINNER 50-48 (AMERCOAT 923) or THINNER 21-25 (AMERCOAT 101)

## **Volume of thinner**

0 - 10%

**Nozzle orifice** 0.013 – 0.015 in (approx. 0.33 – 0.38 mm)

## **Brush/roller**

- Use a high quality natural bristle brush and/or solvent resistant, 1/4" or 3/8" nap roller. Ensure brush/roller is well loaded to avoid air entrainment. Multiple coats may be necessary to achieve adequate film-build
- AMERCOAT 851 flow control additive can be used to for enhanced flow and leveling with brush and roll application

## **Recommended thinner**

THINNER 21-06 (97-727) or THINNER 50-48 (AMERCOAT 923) or THINNER 21-25 (AMERCOAT 101)

## **Volume of thinner**

0 - 5%

## Cleaning solvent

THINNER 90-58 (AMERCOAT 12) or THINNER 21-06 (97-727)



## **ADDITIONAL DATA**

Overcoating interval for DFT up to 2.0 mils (51 μm )				
Overcoating with	Interval	50°F (10°C)	70°F (21°C)	90°F (32°C)
itself	Minimum	12 hours	5 hours	2.5 hours
Maximum		Unlimited	Unlimited	Unlimited

Overcoating interval with 97-722 accelerator or AMERCOAT 866 M accelerator for DFT up to 2.0 mils (51 μm)							
Overcoating with         Interval         20°F (-7°C)         30°F (-1°C)         40°F (4°C)         50°F (10°C)         70°F (21°C)         90°F (32°C)							90°F (32°C)
itself	Minimum	24 hours	12 hours - 16 hours	5 hours	4 hours	2 hours	Not recommended
	Maximum	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited

Curing time for DFT up to 2.0 mils (51 µm )			
Substrate temperature	Dry to touch	Dry to handle	
50°F (10°C)	6 hours	12 hours	
70°F (21°C)	1.5 hours	8 hours	
90°F (32°C) 1 hour		2.5 hours	

Overcoating interval with 97-722 or 866M accelerator for DFT up to 2.0 mils (51 $\mu m$ )				
Substrate temperature	Dry to touch	Dry to handle		
20°F (-7°C)	8 hours	32 hours		
40°F (4°C)	3 hours	5 hours		
70°F (21°C)	1 hour	3 hours		
90°F (32°C)	45 minutes	2 hours		

Pot life (at application viscosity)		
Mixed product temperature	Pot life	
50°F (10°C)	5 hours	
70°F (21°C)	3 hours	
90°F (32°C)	1 hour	



Pot life (at application viscosity): with 97-722 or 866M accelerator			
Mixed product temperature	Pot life		
40°F (4°C)	3 hours		
50°F (10°C)	2 hours 1 hour		
70°F (21°C)			
90°F (32°C) N/A			

## **Product Qualifications**

- SSPC Paint 36 Level 3 Performance
- Considered to be suitable for USDA incidental contact applications
- Meets MPI 83 requirements
- For an anti-slip finish on floors or decks, Amercoat 886 anti-slip additive can be added to Pitthane Ultra LS at a rate of two pints per gallon of coating. Rate of addition of anti-slip additive can be increased or decreased depending on the anti-slip texture desired. Other inert anti-slip additives may also be suitable. Consult your PPG representative for guidance.

## DISCLAIMER

- For industrial or professional use only
- For an anti-slip finish on floors or decks, Amercoat 886 anti-slip additive can be added to Pitthane Ultra LS at a rate of two pints per gallon of coating. Rate of addition of anti-slip additive can be increased or decreased depending on the anti-slip texture desired. Other inert anti-slip additives may also be suitable. Consult your PPG representative.

## SAFETY PRECAUTIONS

- For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets
- This is a solvent-borne paint and care should be taken to avoid inhalation of spray mist or vapor, as well as contact between the wet paint and exposed skin or eyes
- · Resistant to many commonly used disinfectants

#### **Danger**

Rags, steel wool or waste soaked with this product may spontaneously catch fire if improperly discarded. Immediately after use, place rags, steel wool or waste in a sealed water-filled metal container. Refer to www.pittsburghpaints.com, Spontaneous Combustion Advisory for additional information

## WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective and Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.



## REFERENCES

CONVERSION TABLES
 EXPLANATION TO PRODUCT DATA SHEETS
 SAFETY INDICATIONS
 SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD TOXIC HAZARD

### WARRANTY

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shell life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer from recovery under this warranty.

## LIMITATIONS OF LIABILITY

IN NO EVENT WILL PPG BE LIABLE UNDER ANY THEORY OF RECOVERY (WHETHER BASED ON NEGLIGENCE OF ANY KIND, STRICT LIABILITY OR TORT) FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN ANY WAY RELATED TO, ARISING FROM, OR RESULTING FROM ANY USE MADE OF THE PRODUCT. The information in this sheet is intended for guidance only and is based upon laboratory tests that PPG believes to be reliable. PPG may modify the information contained herein at any time as a result of practical experience and continuous product development. All recommendations or suggestions relating to the use of the PPG product, whether in technical documentation, or in response to a specific inquiry, or otherwise, are based on data, which to the best of PPG's knowledge, is reliable. The product and related information is designed for users having the requisite knowledge and industrial skills in the industry and it is the end-user's responsibility to determine the suitability of the product for its own particular use and it shall be deemed that Buyer has done so, as its sole discretion and risk. PPG has no control over either the quality or condition of the substrate, or the many factors affecting the use and application of the product. Therefore, PPG does not accept any liability arising from any loss, injury or damage resulting from such use or the contents of this information (unless there are written agreements stating otherwise). Variations in the application environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results. This sheet supersedes all previous versions and it is the Buyer's responsibility to ensure that this information is current prior to using the product. Current sheets for all PPG Protective & Marine Coatings Products are maintained at www.ppgpmc.com. The English text of this sheet shall prevail over any translation thereof.

## **AVAILABILITY**

## Packaging

1-gallon and 5-gallon kits

Product codes	Description	
95-8930	Industrial White base	
95-8901	Light tint base	
95-8900	Neutral tint base	
95-899	Hardener	

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## DESCRIPTION

One-component, multi-purpose tank and structural primer

## **PRINCIPAL CHARACTERISTICS**

- Rust Inhibitive interior/exterior alkyd primer
- · Ideal for structural steel, tank exteriors, piping and equipment
- May be topcoated on ferrous metal with epoxy and polyurethane coatings as well as conventional alkyds and latex products
- Fast drying properties
- Lead and chromate free

## **COLOR AND GLOSS LEVEL**

- Gray, White, Red
- Flat

## BASIC DATA AT 68°F (20°C)

Data for product		
Number of components	One	
Volume solids	51 ± 2%	
VOC (Supplied)	max. 3.5 lb/US gal (approx. 418 g/l)	
Recommended dry film thickness	2.0 - 2.5 mils (50 - 64 μm) depending on system	
Theoretical spreading rate	409 ft²/US gal for 2.0 mils (10.2 m²/l for 50 μm)	
Shelf life	At least 36 months when stored cool and dry	

Notes:

- See ADDITIONAL DATA Overcoating intervals
- See ADDITIONAL DATA Curing time

## **RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES**

• Coating performance is, in general, proportional to the degree of surface preparation

### <u>Steel</u>

- · Remove all rust, dirt, moisture, grease or other contaminants from the surface
- · Abrasive blast cleaning to SSPC SP-6 standards will give optimum performance
- Where abrasive blasting is not practical, power tool cleaning in accordance with SSPC SP-3 or hand tool cleaning to SSPC SP-2 requirements is acceptable



## Galvanizing

- Degrease to SSPC SP-1 and remove any white corrosion products by hand abrasion
- Galvanizing that has had at least 12 months of exterior weathering may be coated after power washing to remove all
   contaminants and white rust

## Substrate temperature and application conditions

- Surface temperature during application should be between 50°F (10°C) and 120°F (49°C)
- Surface temperature during application should be at least 5°F (3°C) above dew point
- Relative humidity during application and curing should not exceed 85%

## Warning

Removal of old paint by sanding, scraping or other means may generate dust or fumes which contain lead. EXPOSURE TO LEAD DUST OR FUMES MAY CAUSE ADVERSE HEALTH EFFECTS, ESPECIALLY IN CHILDREN OR PREGNANT WOMEN. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted and approved (e.g., NIOSHapproved) respirator and proper containment and cleanup. For additional information, contact the USEPA/Lead Information Hotline at 1-800-424-LEAD or the regional Health Canada office

## SYSTEM SPECIFICATION

- Primers: Direct to metal
- Topcoats: HPC RUST PREVENTATIVE ALKYD 4306, HPC INDUSTRIAL ALKYD 4308, HPC INDUSTRIAL ALKYD 4308H, PITT-TECH PLUS 4216 HP, UNI-GRIP 4380, UNI-GRIP 4382, consult PPG Technical Sales for additional options

Note: Consult your sales representative for additional topcoat offerings

## **INSTRUCTIONS FOR USE**

- · Inspect the top surface and remove any "skins" that may have formed on top
- Agitate with a power mixer for 1 2 minutes until completely dispersed. Ensure good off-bottom mixing

## **Application**

- Area should be sheltered from airborne particulates and pollutants
- Ensure good ventilation during application and curing
- Provide shelter to prevent wind from affecting spray patterns

## <u>Air spray</u>

• Separate air and fluid pressure regulators and a moisture and oil trap in the main air supply line are recommended.

## **Recommended thinner**

No thinner should be added

## Nozzle orifice

Approx. 0.070 in (1.8 mm)



## Airless spray

- 30:1 pump or larger
- Adjust pump pressure as needed

## **Recommended thinner**

No thinner should be added

## Nozzle orifice

0.015 - 0.017 in (approx. 0.38 - 0.43 mm)

Note: Adjust pump pressure as needed

## **Brush/roller**

• Use a high quality polyester/nylon brush and/or a high quality 3/8" nap roller. In hot or dry conditions, layoff lightly rolling with 3/8" nap roller cover. Multiple coats may be required to achieve specified film thickness

## **Recommended thinner**

No thinner should be added

## **Cleaning solvent**

Paint Thinner (laquer thinner/mineral spirits) or PPG Thinner 21-06/65 Thinner

## **ADDITIONAL DATA**

Overcoating interval for DFT up to 2.0 mils (51 μm )							
Overcoating with Interval 77°F (25°C)							
itself	Minimum	2 hours					
Maximum Extended							

### Notes:

- Overcoating times valid for a relative humidity of 50%
- Drying times may vary depending on temperature, humidity, and air movement

Curing time for DFT up to 2.0 mils (51 µm )			
Substrate temperature	Dry to touch	Dry hard	
70°F (21°C)	20 minutes	1 hour	

Note: Curing times valid for a relative humidity of 50%



## **Product Qualifications**

- · Meets MPI Category #23, Primer, Metal, Surface Tolerant
- Meets MPI Category #76, Primer, Alkyd, Quick Dry, for Metal
- Meets MPI category #79, Primer, alkyd, Anti-Corrosive for metal

## DISCLAIMER

• For professional use only. Not for household use

## SAFETY PRECAUTIONS

· For paint and recommended thinners see INFORMATION SHEETS 1430, 1431 and relevant Material Safety Data Sheets

#### **Danger**

Rags, steel wool or waste soaked with this product may spontaneously catch fire if improperly discarded. Immediately after use, place rags, steel wool or waste in a sealed water-filled metal container. Refer to www.pittsburghpaints.com, Spontaneous Combustion Advisory for additional information

## WORLDWIDE AVAILABILITY

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•	SAFETY INDICATIONS	INFORMATION SHEET	1430
•	SAFETY IN CONFINED SPACES AND HEALTH SAFETY, EXPLOSION HAZARD –	INFORMATION SHEET	1431
	TOXIC HAZARD		

## WARRANTY

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## **AVAILABILITY**

## Packaging

1-gallon and 5-gallon containers

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## SUBSTITUTION REQUEST FORM

## Main Library Remodel

SPECIFICATION NO.: LB23-0178F

Prospective bidders may request substitutions in writing on this form. Substitutions shall be submitted on this form via e-mail to:

*Tina Eide, Senior Buyer. E-mail address: teide@cityoftacoma.org* 

All e-mails must be received by **Noon on Friday**, **September 22**, **2023**. Where changes in the project documents are required, an addendum will be issued to everyone on the plan holder's list and posted on <u>www.tacomapurchasing.org</u>.

## Submitted By

Signature <u>Camille Kne</u>	ezevich				
Company Frasch					
Mailing Address	Avenue R				
City Grand Prairie		State	TX	Zip	75050
Phone 803-464-3418	Fax		E-mail	cknezevic	ch@frasch.com
Please check if there are attack	chments				
1. We hereby submit for you	ur consideration	the following p	roduct inste	ead of the spe	cified item for the above project:
Section	Page	Line/Paragra	aph	Specified	Item
098311	43	2.3 A&B		Arktura	a Acoustic Felt Cloud & Baffle
2. Proposed Substitution.	Frasch! Ac	oustic Felt Cl	louds & I	Baffles	
3. Reason for Substitution.	Frasch is a	<u>n as equal pr</u>	oduct wi	th substant	ial cost savings, competitive
lead times and unma	atched custor	mer service.			
<ol><li>Attach complete technica be noted with any deviat</li></ol>	il data, catalog ion noted.	cuts, drawings,	samples, et	tc. Exact mod	els and description of products shall
5. Include complete informa	ation on change	s to Drawings, a	and/or Spec	ifications which	ch proposed substitution will
require for its proper install	ation. <u>NA</u>				
6. Does the substitute affect	t dimensions sh	own on Drawing	gs? No		
6a. If so, how?					
7. Describe the effect subst	itution has on o	ther trades	NA		
8. Describe differences betv	veen proposed s	substitution and	specified in	tem. NA	
				-	

9. Manufacturer's warranties of the proposed and specified items are: 🔊 Same 🤿 Different (explain on attachment)

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item. The undersigned agrees to pay for changes to the building and systems design, including engineering and detailing costs caused by the requested substitution.

## SUBSTITUTION REQUEST FORM

## Main Library Remodel

SPECIFICATION NO .: LB23-0178F

## For Reviewer

Approved for Bidding subject to review and approval of Submittals (and as noted below)

🔲 Not Accepted 📄 Received Too Late

Ву \_\_\_\_\_

Date

Remarks





# FRÄSCH PROJECT REFERENCES



PROJECT NAME	PROJECT LOCATION	PRODUCT(S) USED	ARCHITECT/CONTRACTOR	PROJECT LINK
Port of Galveston	Galveston, TX	SKINNY BAFL	Advantage Interior Supply	frasch.com/portfolio/project-port- folio-port-of-galveston/
Rolls-Royce Corporate Offices		TRIANGLE	Boltt Construction	frasch.com/portfolio/proj- ect-portfolio-rolls-royce- corporate-offices/
SynerFuse, Inc	Eden Prairie, MN	HEX CLOUD, RIPL, CLASSIC BAFL, LIT BAFL, TIMBER, NET, BLADE BAFL, SKINNY BAFL, PANL, SPOKE, LINYFELT	Sonus Interiors	frasch.com/portfolio/project-port- folio-synerfuse/
Center for Ambulatory and Minimally Invasive Surgery	Eatontown, NJ	STRATAWOOD	DePalma Contracting, Inc	frasch.com/portfolio/project-port- folio-eatontown/
Gray Reed	Houston, TX	BLADE BAFL, BOX BAFL, BARL BAFL (CUSTOM)	Clunn Acoustical Systems	frasch.com/portfolio/project-port- folio-gray-reed/
Great Pacific Media	Burnaby, BC	LINYFELT, SKINNY BAFL	SSDG Interiors, Inc	frasch.com/portfolio/project-port- folio-great-pacific-media/
Kiwetinohk Energy Corporation	Calgary, AB	GEAR WALL	Dynamic Drywall Interiors, Ltd	frasch.com/portfolio/project-port- folio-kiwetinohk-energy-corpora- tion/
Lovett Industrial	Houston, TX	BLADE BAFL	Laser Acoustics	frasch.com/portfolio/project-port- folio-lovett-industrial/
Vega		BLADE BAFL, STRATAWOOD	34F Design	frasch.com/portfolio/project- portfolio-vega/
Shawnee Mission Northwest High School	Shawnee, KS	BAFL PLUS, DIAMOND, LINYFELT, TRIANGLES	Perspective Architecutre + Design	frasch.com/portfolio/project-port- folio-shawnee-mission-north- west-high-school/
Northeast Lakeview College	San Antonio, TX	DEW, CLASSIC BAFL	Workplace Resources	frasch.com/portfolio/project-port- folio-northeast-lakeview-college/
Health Care System Auditorium		LINYFELT	Duggan and Marcon Inc.	frasch.com/portfolio/proj- ect-portfolio-health- care-auditorium/
Dignity Health	Phoenix, AZ	STRATAWOOD	Orcutt Winslow	frasch.com/portfolio/project-port- folio-dignity-health/
Toro		BAFL KIT	Macphee Contract Solutions	frasch.com/portfolio/proj- ect-portfolio-toro/
Florence Elementary - Keller ISD	Southlake, TX	PLUS BAFL, CLOUD-ROUND-LIT	Vaden's Acoustics / VLK Architects	frasch.com/portfolio/project-port- folio-florence-elementary/
Texas A&M Commerce	Texas A&M	WAFL BAFL, LINYFELT	Lasco	frasch.com/portfolio/project-port- folio-texas-am-commerce/
OSU College of Osteopathic Medicine at the Cherokee Nation		PANL	Childers Architect	frasch.com/portfolio/project- portfolio-osu-college-of- osteopathy/
Lonestar Electric		BAFL, FENS, BRIK 2.0		frasch.com/portfolio/project- portfolio-lonestar-electric/



PROJECT NAME	PROJECT LOCATION	PRODUCT(S) USED	ARCHITECT/CONTRACTOR	PROJECT LINK
Conejo Mexican Restaurant	Richmond, VA	CLOUD-ROUND		frasch.com/portfolio/proj- ect-portfolio-conejo- mexican-restaurant/
Marriott Vacations Worldwide	Vail, CO	STRATAWOOD LITE, PET SHEETS	Pure Install	frasch.com/portfolio/project-port- folio-marriott-vacations-worldwide/
Lululemon Mall of America	Bloomington, MN	CUSTOM WAVY BAFL	MBH Architects	frasch.com/portfolio/project-port- folio-lululemon/
Booz Allen Hamilton at First Hawaiin Center	Honolulu, HI	CANOE BAFL	J. Kadowaki, Inc	frasch.com/portfolio/project-port- folio-booz-allen-hamilton/
Glow Facial Bar	Warner Robins, GA	PANL	SMR Interiors	frasch.com/portfolio/project-port- folio-glow-facial-bar/
Stagen	Dallas, TX	ACOUSTICAL DOME/EGG		frasch.com/portfolio/proj- ect-portfolio-stagen/
Outfront Media, Inc	Dallas, TX	BAFL, LIT BAFL		frasch.com/portfolio/proj- ect-portfolio-outfront- media/
Legacy Town Center III Fitness Center	Plano, TX	3D HEX	Entos Design	frasch.com/portfolio/project-port- folio-legacy-town-center/
Planet Fitness Offices	Austin, TX	BAFL, LIT BAFL		frasch.com/portfolio/proj- ect-portfolio-planet- fitness/
Marek Brothers	Dallas, TX	BRIK, CLIF		frasch.com/portfolio/proj- ect-portfolio-marek/
DefiSolutions	Westlake, TX	BRIK, PILO	Phoenix Acoustical Solutions	frasch.com/portfolio/project-port- folio-defisolutions/
Gartner, Inc	Irving, TX	BRIK - Acoustical Wall Treatments	Balfour Beatty	frasch.com/portfolio/case-study- brik-wall/
Sun Holding, Inc		PANL - Acoustical Lasercut Divider Screens		frasch.com/portfolio/ case-study-panl-dividers/
Lidl	Arlington, VA	BRIK, BAFL	Ethosource	frasch.com/portfolio/project-port- folio-lidl/
Como Community Center	Fort Worth, TX	CUSTOM ART WALL	НКЅ	frasch.com/portfolio/project-port- folio-como-community-center/
Royer Interiors	Fort Worth, TX	CHIPS, 3D-HEX		frasch.com/portfolio/proj- ect-portfolio-royer/
Texas Specialty Sand		BAFL - Acoustical Ceiling Baffles		frasch.com/portfolio/ case-study-bafl-ceiling/
Imaginuity	Dallas, TX	PRIVACY PANEL		frasch.com/portfolio/proj- ect-portfolio-imaginuity/
HOK Offices	Tampa, FL	BRIK, HEX-BRIK, PANL	НОК	frasch.com/portfolio/project-port- folio-hok-tampa-offices/
Gartner	Stamford, CT	BRIK	НОК	frasch.com/portfolio/project-port- folio-gartner-stamford/
PGA Headquarters	Frisco, TX	DIAMOND TILES	Page Architects	frasch.com/portfolio/project-port- folio-pga-headquarters-frisco-tx/



**Port of Galveston** 



**Rolls-Royce Corporate Offices** 



Synerfuse



Lovett Industrial







Shawnee Mission Northwest High School



Center for Ambulatory and Minimally Invasive Surgery



**Gray Reed** 



**Great Pacific Media** 



**Kiwetinohk Energy Corporation** 



Alamo College



**Toro Offices** 



Health Care Systems Auditorium



**Dignity Health** 



Florence Elementary - Keller ISD



**Texas A&M Commerce** 





OSU College of Osteopathy



**Lonestar Electric** 



**Conejo Mexican Restaurant** 



**Marriot Vacations Worldwide** 



Lululemon



Booz Allen



Glow



Stagen



**Outfront Media** 



Marek



**Sun Holdings** 



Legacy Fitness



defiSolutions



**Planet Fitness** 



Gartner



Lidl



**Specialty Sand** 



Como



Inginuity



Royer



Library



нок



**Gartner Stamford** 



PGA Headquarters – Frisco, TX

# Resources

Fräsch Project Portfolio: frasch.com/portfolio

Specs Sheets and Installation Instructions: <u>frasch.com/specs-and-downloads</u>



# 9mm Colors

07	44	42	52	53	02	35
White	Ivory	Cream	Latte	Smoky Beige	Taupe	Speckled Earth
40	54	45	12	26	50	41
Brunette	Espresso	Big Red	Lava	Berry	Caramel	Marigold
55 Tangerine	51 Sunkist Orange	22 Yellow	39 Green Apple	48 Avocado	12 Moss	05 Dark Green
47 Emerald	18 Arctic Ice	30 Blue	56 Azure	19 Denim	21 Indigo Blue	09 Deep Blue
08 Eggplant	03 Light Gray	34 Pure Gray	11 Steel	17 Dark Gray	10 True Black	
02P Pecan Medium Brown*	01P Birch Light Brown*	03P Rich Soil*	04P Grey Wash*			

May 2022

Fräsch warrants all products to be free of defects in materials and craftsmanship for two years from the date of purchase to the original customer. See our two-year warranty sheet for full details.

Due to the "heathered" effect of the material, slight and consistent variations in color may be present.

Felt thickness may vary slightly between colors. Color balance on monitors and printers vary; please request a color sample for the most accurate representation of colors.

\* These are printed colors and will incur an extra charge.



# **12mm Colors**





07-12



10-12 True Black



17-12

Dark Gray

45-12 Big Red



05-12 Dark Green





74-12 Heathered Slate



78-12 Heathered Quartz



71-12 Heathered Granite



73-12 Heathered Mustard



72-12 Heathered Lagoon



34-12 Pure Gray



75-12 Heathered Oatmeal



39-12 Green Apple



76-12 Heathered Teal



63-12 Medium Gray



02-12 Taupe



70-12 Heathered Foliage



21-12 Indigo Blue



77-12 Heathered Violet

#### May 2022

Fräsch warrants all products to be free of defects in materials and craftsmanship for two years from the date of purchase to the original customer. See our two-year warranty sheet for full details. Due to the "heathered" effect of the material, slight and consistent variations in color may be present. Felt thickness may vary slightly between colors. Color balance on monitors and printers vary; please request a color sample for the most accurate representation of colors.

\* These are printed colors and will incur an extra charge.



## **2023 COMPETITIVE ANALYSIS**

Manufacturer	:	Product Applications						ons		PET	Lead time	Hardware	e Live Tech	1 Digital	Digital Size	Acoustic	CEU	Limited	CET	Revit	AutoCAD	Price Point
	2 cilina		Walls	Divider	T-Grid	Wood	Formed	Lighting	Custom	Colors	(weeks)	Included	Support	Finning	Mounications	Calculator	Flation	Distribution				Folin
Frasch	~	-	/	~	~	~	~	~	~	59	4-6	<ul> <li>Image: A second s</li></ul>	~	$\checkmark$	<ul> <li>Image: A second s</li></ul>	$\checkmark$	~	<ul> <li>Image: A second s</li></ul>	~	~	~	\$\$
3Form	*		*	*	*		*			21	6-8	X	X	X	×	×	<b>~</b>	×	<b>~</b>	X	×	\$\$\$\$
Acoufelt	*		*	*	*	*			*	29	8-10	X	X	X	×	×	X	X	X	x	x	\$\$\$\$
Arktura	*		*	*	*	*	*	*	*	24	8-12	X	X	X	×	×	X	X	X	•	×	\$\$\$\$\$
Autex	*		*	*	*	*	*			18	8-10	X	X	x	×	x	X	X	X	x	x	\$\$\$\$
Buzzispace	*		*	*			*	*		8	10-12	X	X	x	x	x	X	X	x	x	•	\$\$\$\$\$
EzoBoard	*		*	*	*	*				29	10-12	X	X	x	×	x	X	X	X	x	x	\$\$\$
FilzFelt	*		*	*	*	*	*	*	*	96	8-10	X	X	x	-	x	X	X	X	~	x	\$\$\$\$\$
Focal Point	*				*			*		24	10-12	X	X	x	*	x	X	X	X		x	\$\$\$\$\$
Kirei	*		*	*	*	*	*			33	8-10	X	x	x	×	x	x	x	x	x	x	\$\$\$
MPS	*		*	*	*	*	*	*		30	6-8	X	x	x	×	×	x	x	x		×	\$\$
SXwSound	*		*	*	*	*	*			50	12-18	X	x	x	x	x	x	x				\$\$\$\$
Soelberg	*		*	*	*		*			40	10-12	X	x	x	×	x	x	x	X	x	×	\$\$\$\$
TURF	*		*	*	*	*	*	*	*	70	8-10	X	x	x	×	x	x	x	x			\$\$\$\$
Unika Vaev	*		*	*	*		*	*	*	34	6-14	X	x	x	×	x	x	x	x		x	\$\$\$\$
Zintra-MDC	*		*		*	*	*		*	28	6-8	x	x			x	x	x	x	~	x	\$\$\$

# Warranty

Fräsch warrants to the original purchaser that all products under normal use shall meet their respective specifications (published sound absorption coefficients have been generated under controlled laboratory conditions and may not be replicated in other situations) as set forth in the current Fräsch price book for a period of two (2) year from the date of delivery. If a product fails to conform to this limited warranty during the first two years after date of shipment, upon prompt written notice, Fräsch will, at its option, repair, replace, or refund the purchase price of, the affected product. This warranty does not apply to other third party acts or omissions, user modifications or installation, or unusual atmospheric or environmental conditions. ALL OTHER WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED.

**QUALIFICATIONS** This warranty is applicable to product dispatched from the manufacturer from onwards. • This warranty applies to the original owner / purchaser of the product only. • All claims under this warranty must be communicated to a local authorized service agent or distributor of Fräsch. • Fräsch reserves the right to determine the cause of a claim and correct action required to address any claims under this warranty. • Unauthorized servicing immediately renders any warranty null and void. Financial reimbursement will not be paid for any work carried out by an unauthorized third party. • The express warranties contained herein are in lieu of all other warranties, express or implied.

**INCLUSIONS** All parts and labor required to return the product back to full use. • Pick-up and re-delivery of any product that cannot be serviced on site. • Normal use of product in a general office / administration environment.

**EXCLUSIONS** Normal wear and tear (scratches, etc.) and/or user abuse. • Third party fabrics, foams and laminated board (HPL & LPL), or other third party supplied product: all will be covered by their own proprietary warranty. • Any damage arising from water, heat and/or direct sunlight: these sources can have a damaging effect on most surfaces



# PET Cleaning & Disinfecting Guide

## **Dust & Dirt Removal**

- 1. If there is visible dust or dirt embedded in the material, use a bristle brush to loosen it. Avoid excess pressure.
- 2. Vacuum loose dust and dirt thoroughly from the material.

## **Cleaning & Maintenance**

- 1. Remove any loose dust and dirt (see above).
- 2. Pat any spills as soon as possible to avoid liquids from absorbing into the material.
- 3. Apply a mild detergent or soap and water with a hand spray application. Avoid over-soaking the surface.
- 4. Allow the surface to air dry.

## **Stain Removal**

- 1. Saturate a lint-free cloth with a mild detergent or soap and water solution.
- 2. Gently pat the stain starting from the outer edge and moving inward.
- 3. If required, get another cleaning cloth and repeat the procedure until there is no more transfer of dirt to the cloth.
- 4. Once the stain is removed, soak up all remaining cleaning solution with a dry cloth.
- 5. Use a clean cloth or sponge soaked in water to remove any other residue.
- **6.** Allow the surface to air dry.

## Disinfection

- 1. Choose one of the recommended disinfectants\*.
- 2. Mist the surface of the material with a hand spray applicator. Apply generously.
- 3. Allow material to air dry.
- \* For disinfection, common household EPA-registered disinfectants should be effective.
- \* Please refer to the EPA-approved list of products effective against the virus that causes COVID-19.
- \* A diluted solution of household bleach (at least 1000 ppm sodium hypochlorite) can be sprayed on. Prepare a bleach solution by combining 1/3 C bleach per gallon of water. Bleach solutions will remain effective for a time period of up to 24 hours.



# What Sets Us Apart

## EASY TO WORK WITH FROM START TO FINISH!



**24- HOUR QUOTES** Using our Portal



## **CUSTOMIZATION**

All products are made to order so we can align to your specification



**TECHNICAL SUPPORT** Installation guidance & training before the installation



## HARDWARE

Included in our quotes and verified before shipping



**SHORT LEAD TIME** 6-8 Weeks + 15 day quick ship

## PART 1 - GENERAL

- 1.1 DESCRIPTION OF WORK
  - A. Disturbance of asbestos-containing materials (ACMs) is not anticipated as part of the Tacoma Public Library Main Branch Renovation project. See below for additional information and requirements.
  - B. Lead-containing items: The owner has conducted a survey of lead-containing items in the areas to be impacted by the Work. Samples of representative paint coatings to be impacted by the project did not contain detectable lead. Survey samples and results are included in the attached Limited Hazardous Materials Survey Report.
  - C. General Contractor is responsible for coordinating all regulated/hazardous materials work to comply with the overall project schedule. General Contractor is responsible for coordination with the Owner and Environmental Consultant.

## 1.2 RELATED WORK

A. Work performed under this specification section is governed by related specification sections, plans or drawings, including but not limited to, the following:

Division 00 – Procurement and Contracting Requirements Division 01 – General Requirements Division 02 – Existing Conditions

## 1.3 ASBESTOS-CONTAINING MATERIALS

- A. Presence of Asbestos: The Owner has surveyed accessible portions of the areas included in the Work with the objective of identifying the presence of asbestos-containing materials. The Contractor shall refer to the Limited Hazardous Materials Survey Report attached to this Section, which lists suspect-ACMs sampled at areas included in the Work and analysis for asbestos content. The Contractor shall ensure that a copy of this summary is made available to and retained on the project site by all subcontractors.
- B. The Contractor shall be aware that suspect-ACMs may exist in inaccessible locations of areas included in the Work. The Contractor shall proceed with caution during all phases of the Work. Should any suspect-ACMs not indicated in the Limited Hazardous Materials Survey Reports be encountered, the Contractor shall immediately notify the Owner and Environmental Consultant.
- C. The Contractor is advised that should additional ACMs not included in the Limited Hazardous Materials Survey Reports be encountered, the Owner may elect to include such materials in the Work according to the terms of the General Conditions. Work impacting such materials is not to occur prior to the Contractor receiving explicit written authorization from the Owner, and any Work performed without such approval is performed at the Contractor's own risk and expense.
- D. The disturbance or impact of ACMs may cause asbestos fibers to be released into the atmosphere, thereby creating a potential health hazard. Contractor is to apprise all workers, supervisory personnel, subcontractors and consultants who will be at the jobsite of the seriousness of this potential hazard and of proper Work procedures that must be followed, should it occur.

1. Should the disturbance or impact of ACMs occur, or additional ACMs not included in the Limited Hazardous Materials Survey Report be encountered, the Contractor shall immediately notify the Owner.

## 1.4 LEAD-CONTAINING PAINT/COMPONENTS

- A. Lead-containing Paint: The Owner has conducted a lead-containing paint survey of the areas to be impacted by the Work. Survey samples and results are included in the attached Limited Hazardous Materials Survey Reports.
  - 1. Lead was NOT identified above analytical detection limits in representative paint chip samples collected from areas to be impacted by the Work.
  - 2. Caution should be exercised due to the potential presence of concealed painted coatings or factory painted coatings on equipment, structural steel, etc.
  - 3. Consider any painted coatings that have not been tested to be lead-containing.
- 1.5 MERCURY (Hg)
  - A. Fluorescent light tubes are known to contain regulated concentrations of mercury and require special handling and disposal/recycling at a facility permitted to accept such waste.
  - B. Prevent breakage to any tubes or thermostats bulbs encountered during demolition or renovation activities.
  - C. All employers of personnel performing work related to fluorescent light tubes are to submit the following information related to all tasks to be performed by their personnel:
    - 1. Work Plan: Provide a detailed description of the work impacting light tubes to be performed, including personal protective equipment and engineering controls to be implemented during the work, decontamination procedures, access restriction procedures and controlled areas, debris clean-up procedures, exposure assessments and any related air monitoring.
    - 2. Disposal/Recycling Information: Prior to commencing work, provide the name, address and phone number of the proposed end-point facility to receive fluorescent light tubes removed from the project site. Submit to the Environmental Consultant all waste manifests and disposal/recycling receipts during removal operations on a weekly basis.

## 1.6 WORK COVERED BY CONTRACT DOCUMENTS

- A. Asbestos-related impacts are <u>not anticipated</u> as part of the Work.
- B. The contractor shall comply with all applicable local, state and federal regulations, laws and ordinances concerning removal, remodeling, cutting, handling, storage, disposal, monitoring and protection against exposure or environmental pollution related to lead and regulated metals. Work related to lead-containing paint, lead-containing components and regulated metals within this contract is the responsibility of the Contractor and shall be performed in accordance with all applicable local, state and federal regulations and the Contract Documents.
  - 1. Based on paint chip test data. It is anticipated that disposal of the waste streams generated by the Work will not require disposal according to WAC 173-303, Dangerous Waste Regulations, as it pertains to lead.
  - 2. Toxic Characteristic Leaching Procedure (TCLP) waste stream characterization related to lead is to be performed, as necessary, by the Contractor.

Building Work Bid Set Addendum 1 September 15, 2023

C. The Contractor shall furnish all labor, materials, equipment, services and insurance that is specified, shown, or reasonably implied for the removal, packaging, transport and recycling/disposal of mercury-containing fluorescent light tubes from various locations throughout. Coordinate with architectural and electrical demolition sheets for fixtures impacted by the Work. See Item 1.5 Mercury (Hg) for additional information.

## 1.7 EXISTING CONDITIONS

- A. The Environmental Consultant and Owner make no representation, warranty or guarantee the conditions indicated by the test reports or inspection summary are representative of those conditions existing throughout the area, or that unforeseen developments may not occur, or that materials other than, or in proportions different from those indicated, may not exist.
- B. Contractor is advised that the locations of all ACMs may not be clearly known, and that care should be taken to prevent impact of ACMs located in concealed and inaccessible locations.
- C. Contractor is advised to familiarize with access and space restrictions in areas affected by the Work and to account for such limitations in schedule and production expectations.

## 1.8 WORK NOT COVERED BY CONTRACT DOCUMENTS

- A. Not used.
- 1.9 OWNER'S RULES
  - A. The Contractor shall abide by all facility rules and regulations.
- 1.10 CLEAN UP
  - A. Ensure that all areas are free of all refuse and debris at completion of Work.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION (NOT USED)

## END OF SECTION

# **Limited Hazardous Materials Survey Report**

Tacoma Public Library – Main Branch Renovation 1102 Tacoma Ave South Tacoma, Washington 98402

Prepared for: Tacoma Public Library 1102 Tacoma Avenue South Tacoma, WA 98402

September 15, 2023 PBS Project No. 41286.038



214 E GALER STREET, SUITE 300 SEATTLE, WA 98102 206.233.9639 MAIN 866.727.0140 FAX PBSUSA.COM

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## APPENDICES

## **APPENDIX A: PLM Bulk Sampling Information**

PLM Bulk Sample Inventories PLM Bulk Sample Laboratory Data Sheets PLM Bulk Sample Chain of Custody Documentation

## **APPENDIX B: AA Lead Paint Chip Sampling Information**

AA Lead Paint Chip Sample Inventories AA Lead Paint Chip Laboratory Data Sheets AA Lead Paint Chip Chain of Custody Documentation

## **APPENDIX C: Certifications**



## **1** INTRODUCTION

## 1.1 Project Background

PBS Engineering and Environmental, Inc. (PBS) performed a limited hazardous materials survey of the Tacoma Public Library Main Branch in Tacoma, Washington. The intent of this investigation is to ensure compliance with applicable regulatory requirements that a "good faith inspection" for asbestos-containing materials (ACMs) be performed prior to renovation activities.

All accessible areas associated with the planned work were inspected for the presence of ACMs, leadcontaining paint (LCP), mercury-containing fluorescent lights, and polychlorinated biphenyls (PCBs) in ballasts. PBS's understanding of the scope of work is based on Bid Set drawings prepared by Buildingwork dated 08/04/2023. It is our understanding that the scope of the project includes an interior remodel/reconfiguration of the Main Building Level 1 & 2 and limited renovations to the Carnegie Building Level 1 & 2.

No other areas besides those indicated to be impacted were inspected and no other hazardous materials were tested for as part of this limited hazardous materials survey.

## **1.2 Building Description**

The Tacoma Public Library Main Branch consists of the Carnegie Building and the Main Building. Interior spaces generally consist of open library space, meeting rooms, restrooms and offices. Interior finishes consist of carpet, ceramic tile, and sheet vinyl floors, gypsum wallboard and plaster walls, and lay-in ceiling tile and gypsum wallboard ceilings. The exterior consists of an exterior finishing insulation system (EIFS) with metal framed windows and doors.

## 1.3 Survey Process

All accessible areas included in the project scope were inspected by Asbestos Hazard Emergency Response Act (AHERA) Certified Building Inspector Nick San (Cert No. IRO-22-8856B Exp. 10-13-2023) and Ryan Hunter (Cert No. IRO-23-7254B Exp. 02/13/2024 on August 25 and September 12, 2023. PBS endeavored to inspect all accessible areas of the scope of work. Inaccessible areas consist of those requiring selective demolition, fall protection, or confined space entry protocols in order to gain access.

When observed, suspect materials were sampled. All samples were assigned a unique identification number and transmitted for analysis to NVL Laboratories (NVLAP #102063-0) in Seattle, Washington under chain-ofcustody protocols. Samples were analyzed according to EPA Method 600R-93/116 using Polarized Light Microscopy (PLM), which has a reliable limit of quantification of 1% asbestos by volume. Information regarding the type and location of sampled materials can be found on the attached PLM Sample Inventory.

Suspect ACMs may exist in inaccessible areas. PBS endeavored to determine the presence and estimate the condition of suspect materials in all inaccessible areas included in the scope of work. While PBS has endeavored to identify the ACM that may be found in concealed locations, additional unidentified ACM may exist.

## 2 FINDINGS

## 2.1 Asbestos-Containing Materials (ACMs)

The following materials were sample and found to contain greater than 1% asbestos.

 No asbestos-containing materials were identified in the planned renovation areas as part of this investigation



The following materials were sampled and found **not** to contain asbestos:

- 2' x 2' lay-in ceiling tile
- Gypsum wallboard with joint compound
- Wall panel mastic
- Exterior insulation finishing system
- Lightweight concrete flooring
- Yellow carpet mastic
- Ceramic floor and wall tile with grout and backing
- Brown sheet vinyl flooring with gray underlayment
- Speckled white sheet vinyl flooring
- 4" tan cove base with cream mastic
- 4" gray cove base with cream mastic
- White lagging with fiberglass insulation
- HVAC duct insulation
- White sink caulking
- HVAC duct caulking
- Door frame caulk
- Gray sink undercoating
- Urinal caulk
- Plaster patching material
- Yellow mastic at rubber stair tread
- Brown mastic at wood wall slats
- Exterior window frame caulk

Refer to Appendix A for a complete listing of representative bulk sampling and associated laboratory analysis.

## 2.2 Lead-Containing Components

Eight (8) representative painted coating was sampled for lead content during this survey. The sample was assigned a unique identification number and transmitted to NVL Laboratories (AIHA IH #101861) in Seattle, Washington under chain-of-custody protocols for analysis using Flame Atomic Absorption.

• Lead was **not** identified above the analytical limit of detection in the samples analyzed.

The following painted coatings were sampled and determined **not** to contain detectable lead.

- Off-white paint on gypsum wallboard at Main Building Level 2 northwest area
- Gray paint on gypsum wallboard at Carnegie Building Level 1 Room A
- Lime green paint on gypsum wallboard at Main Building Level 1 southeast offices
- Off-white paint on gypsum wallboard wall at Main Building Level 1 Main Desk
- White paint on gypsum wallboard wall at Carnegie Building Level 2 corridor
- Gray paint on metal door frame at Main Building Level 2 North Storage
- Red paint on exterior meta window frame at Main Building west elevation
- Gray paint on exterior EIFS wall at Main Building west elevation

Refer to Appendix B for specific sample locations and laboratory results of paint samples.

## 2.3 Mercury-Containing Components

All fluorescent light tubes are presumed to contain mercury. PBS counted the number of fluorescent tubes that will be impacted by the project for the purposes of mercury vapor recovery prior to demolition activities.

• Approximately 640 four-foot fluorescent light tubes were identified as part of this survey.



## 2.4 PCB-Containing Components

PBS inspected representative fluorescent light fixture ballasts that are to be removed to facilitate the planned demolition. Fluorescent light fixtures throughout the building were inspected and found to contain electronic ballasts. Electronic ballasts do not contain suspect PCB oils.

## **3 RECOMMENDATIONS**

## 3.1 ACMs

No asbestos-containing materials were found in the work scope area during this survey.

The possibility exist that suspect ACMs may be present/concealed in equipment, floor, wall and ceiling cavities, and in select areas of the ceiling included in the scope of renovations. These may include but are not limited to ACM pipe insulation and hard-mudded fittings in wall cavities, chase areas and ceiling plenums, construction mastics and adhesives within wall/ceiling assemblies, mechanical insulation/components on ductwork and equipment, and/or weatherproofing/moisture barriers.

PBS recommends that any previously unidentified materials revealed during renovation activities be sampled for asbestos content prior to impact. If suspect ACMs is uncovered during construction, contractor should stop work immediately and inform the owner promptly for confirmation testing. All untested materials should be presumed asbestos-containing or tested for asbestos content prior to impact.

## 3.2 Lead-Containing Components

Limited representative painted coatings from the project location were found to contain no detectable lead by laboratory analysis. Painted coatings may exist in inaccessible areas of the work area or in secondary coatings. Any previously unidentified painted coatings should be considered lead-containing until sampled and proven otherwise. Dust control and housekeeping is crucial in preventing worker and occupant exposures.

Impact of materials with detectable concentrations of lead requires construction activities to be performed according to Washington Labor and Industries regulations for Lead in Construction (WAC 296-62-155). Workers impacting lead should be provided the proper personal protective equipment and use proper work methods to limit occupational and environmental exposure to lead until an initial exposure assessment has been conducted. Handling of painted coatings that contain 0.5 % or greater lead content must be in accordance with 40 CFR Part 745 Lead.

## 3.3 Mercury-Containing Components

Fluorescent lamps are known to contain mercury and mercury vapors. All fluorescent lamps at this site are presumed to be mercury-containing. PBS recommends that all fluorescent lamps be carefully handled and recycled/disposed of in accordance with applicable regulations. Breakage of lamps should be avoided to prevent potential exposures to mercury. Washington Department of Safety and Health requires specific training, handling, engineering controls and disposal practices when performing this work. All waste shall be handled in accordance with WAC 173-303.

## 3.4 PCB-Containing Components

PBS recommends all light ballasts be inspected prior to disposal. Magnetic ballasts should be presumed to contain PCBs and properly removed, stored, transported and disposed of in accordance with Washington Administrative Code (WAC) 173-303 Dangerous Waste Regulations and 40 CFR Part 761 Subpart D. Electronic ballasts do not contain PCB's and can be disposed of as general debris in compliance with applicable codes and endpoint facility requirements.



Report prepared by:

Report reviewed by:

Nick San AHERA Building Inspector Cert No. IRO-22-8856B Exp. 10-13-2023 Ryan Hunter Project Manager/ AHERA Building Inspector Cert. #IRO-24-7254B, Exp. 2/13/2024

## **APPENDIX A**

## **PLM Bulk Sampling Information**

PLM Bulk Sample Inventory PLM Bulk Sample Laboratory Data Sheets PLM Bulk Sample Chain-of-Custody Documentation

## Tacoma Public Library - Main Branch Renovation City of Tacoma

PLM ASBESTOS SAMPLE INVENTORY

PBS Sample #	Material Type	Sample Location	Lab Description	Lab Result	<u>Lab</u>
41286.038-001	2' x 2' solid lay-in ceiling tile	Carnegie Building level 1 Cascade Room B	Layer 1: Gray fibrous material with paint	NAD	NVL
41286.038-002	2' x 2' solid lay-in ceiling tile	Main Building Level 2 northwest section	Layer 1: Gray fibrous material with paint	NAD	NVL
41286.038-003	2' x 2' solid lay-in ceiling tile	Main Building Level 1 southwest	Layer 1: Gray fibrous material with paint	NAD	NVL
41286.038-004	2' x 2', 1' square design lay-in ceiling tile	Carnegie Building Level 1 north end	Layer 1: Gray fibrous material with paint	NAD	NVL
41286.038-005	Gypsum wallboard Joint compound	Carnegie Building Level 1 Cascade Room A	Layer 1: White fibrous chalky material with paper	NAD	NVL
41286.038-006	Gypsum wallboard Joint compound	Main Building Level 2 near restrooms	Layer 1: White compacted powdery material Layer 2: White chalky material with paper	NAD NAD	NVL
41286.038-007	Gypsum wallboard Joint compound	Main Building Level 2 northwest Meeting Room	Layer 1: White chalky material with paper	NAD	NVL
41286.038-008	Gypsum wallboard Joint compound	Main Building Level 1 southeast offices	Layer 1: White compacted powdery material Layer 2: White chalky material with paper	NAD NAD	NVL
41286.038-009	Wood framed wall panel brown mastic	Carnegie Building Level 1 north end	Layer 1: Tan brittle mastic with paint	NAD	NVL
41286.038-010	Exterior insulation finishing system	Main Building exterior	Layer 1: Gray cementitious material with granules and paint	NAD	NVL
41286.038-011	Exterior insulation finishing system	Main Building exterior southwest	Layer 1: Gray cementitious material with granules, rubber, and paint	NAD	NVL
41286.038-012	Lightweight concrete flooring under carpet squares	Carnegie Building Level 1 southwest Cascade Room A	Layer 1: Off-white cementitious material with granules	NAD	NVL
# Tacoma Public Library - Main Branch Renovation

City of Tacoma

PLM ASBESTOS SAMPLE INVENTORY

PBS Sample #	Material Type	Sample Location	Lab Description	<u>Lab Result</u>	<u>Lab</u>
41286.038-013	Lightweight concrete flooring under carpet squares	Carnegie Building Level 1 community room	Layer 1: White cementitous material with granules Layer 2: Tan soft mastic	NAD NAD	NVL
41286.038-014	Yellow carpet mastic	Carnegie Building Level 2 stairs	Layer 1: Tan soft mastic	NAD	NVL
41286.038-015	Yellow carpet mastic	Main Building Level 2 northeast	Layer 1: Gray/tan soft mastic	NAD	NVL
41286.038-016	Ceramic floor and wall tile Grout and backing	Carnegie Building Level 1 men's restroom	Layer 1: Gray ceramic tile Layer 2: Gray brittle material with granules Layer 3: White brittle material with granules	NAD NAD NAD	NVL
41286.038-017	Ceramic floor tile	Carnegie Building Level 1 lobby	Layer 1: Beige ceramic tile	NAD	NVL
41286.038-018	Brown sheet vinyl flooring Gray underlayment	Main Building Level 2 restrooms	Layer 1: Brown vinyl material Layer 2: Gray soft mastic with fibrous mesh	NAD NAD	NVL
41286.038-019	Speckled white sheet vinyl flooring	Carnegie Building Level 1 kitchen	Layer 1: Beige vinyl material Layer 2: Beige fibrous backing with mastic	NAD NAD	NVL
41286.038-020	4" tan covebase Cream mastic	Main Building Level 2 northwest meeting room	Layer 1: Brown rubbery material Layer 2: Beige hard mastic	NAD NAD	NVL
41286.038-021	4" gray covebase Cream mastic	Carnegie Building Level 1 community room	Layer 1: Gray rubbery material Layer 2: Beige hard mastic	NAD NAD	NVL
41286.038-022	White lagging Fiberglass insulation	Main Building Level 2 central by staircase	Layer 1: Yellow fluffy fibrous material with paper and foil	NAD	NVL
41286.038-023	HVAC duct insulation	Main Building Level 1 southwest	Layer 1: Yellow fluffy fibrous material with paper and foil	NAD	NVL
41286.038-024	White sink caulking	Main Building Level 2 restrooms	Layer 1: White rubbery material with paint	NAD	NVL
41286.038-025	HVAC duct caulking	Main Building Level 2 central by staircase	Layer 1: Gray rubbery material	NAD	NVL

# Tacoma Public Library - Main Branch Renovation City of Tacoma

PBS Sample #	Material Type	Sample Location	Lab Description	<u>Lab Result</u>	<u>Lab</u>
41286.038-026	Door frame caulk	Main Building Level 2 west side	Layer 1: White rubbery material with paint	NAD	NVL
41286.038-027	Gray sink undercoating	Carnegie Building Level 1 kitchen	Layer 1: Gray brittle material	NAD	NVL
41286.038-028	White caulk at urinal	Carnegie Building Level 1 men's restroom	Layer 1: White rubbery material	NAD	NVL
41286.038-029	Plaster patching material	Carnegie Building Level 1 north end	Layer 1: White brittle material	NAD	NVL
41286.038-029	Yellow mastic at rubber stair tread	Main Building central stairs	Layer 1: Yellow/tan brittle mastic with debris	NAD	NVL
41286.038-030	Brown mastic at wood wall slats	Mian Building Level 2	Layer 1: Brown/beige brittle mastic with paint and wood flakes	NAD	NVL
41286.038-031	White 2'x2' lay-in ceiling tile	Main Building Level 1 south offices	Layer 1: Beige fibrous material with white thin powdery material with paint	NAD	NVL
41286.038-032	Gray sink undercoat	Main Building Level 2 storage	Layer 1: Gray/off-white crumbly material	NAD	NVL
41286.038-033	Brown exterior window frame caulk	Main Building west elevation	Layer 1: Brown/red soft rubbery material with debris	NAD	NVL

August 29, 2023



Ryan Hunter PBS Environmental - Seattle 214 E Galer St. Suite. 300 Seattle, WA 98102

### RE: Bulk Asbestos Fiber Analysis; NVL Batch # 2313673.00

Client Project: 41286.038 Location: Tacoma Public Library - Main Branch Renovation

Dear Mr. Hunter,

Enclosed please find test results for the 29 sample(s) submitted to our laboratory for analysis on 8/25/2023.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with **U. S. EPA 40 CFR Appendix E to Subpart E of Part 763**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116**, Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Munaf Khan, Laboratory Director

Testing

Enc.: Sample Results

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227) 4708 Aurora Avenue North | Seattle, WA 98103-6516



# **Bulk Asbestos Fibers Analysis**

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Lab ID: 23083199 Client Sample #: 41286.038-001 Location: Tacoma Public Library - Main Branch Renovation Laver 1 of 1 Description: Gray fibrous material with paint Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% None Detected ND Binder/Filler, Perlite, Paint Cellulose 41% Glass fibers 34% Lab ID: 23083200 Client Sample #: 41286.038-002 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Gray fibrous material with paint Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % None Detected ND Binder/Filler, Perlite, Paint Cellulose 42% Glass fibers 31% Lab ID: 23083201 Client Sample #: 41286.038-003 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Gray fibrous material with paint Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% **None Detected ND** Binder/Filler, Perlite, Paint Cellulose 42% Glass fibers 33% Client Sample #: 41286.038-004 Lab ID: 23083202 Location: Tacoma Public Library - Main Branch Renovation Laver 1 of 1 Description: Gray fibrous material with paint Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% None Detected ND Binder/Filler, Perlite, Paint Cellulose 43% Glass fibers 32% Sampled by: Client Analyzed by: Alex Shea Date: 08/28/2023 Reviewed by: Munaf Khan Date: 08/29/2023 Munaf Khan, Laboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government



Date Received: 8/25/2023 Samples Received: 29 Samples Analyzed: 29 Method: EPA/600/R-93/116

# 🌼 NVL

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Batch #: 2313673.00 Client Project #: 41286.038 Date Received: 8/25/2023 Samples Received: 29 Samples Analyzed: 29 Method: EPA/600/R-93/116

Lab ID: 23083203 Client Sample #: 41286.038-005							
Location: Tacon	Location: Tacoma Public Library - Main Branch Renovation						
Layer 1 of 1	Description: White fibrous chalky material with pa	aper					
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %				
	Gypsum/Binder, Fine particles	Cellulose 30%	None Detected ND				
		Glass fibers 22%					
Lab ID: 230832 Location: Tacon	204Client Sample #: 41286.038-006na Public Library - Main Branch Renovation						
Layer 1 of 2	Description: White compacted powdery material						
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %				
	Calcareous binder, Fine particles	Cellulose 18%	None Detected ND				
Layer 2 of 2	Description: White chalky material with paper						
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %				
	Gypsum/Binder, Fine particles	Cellulose 16%	None Detected ND				
Lab ID: 230832 Location: Tacon	205 Client Sample #: 41286.038-007 na Public Library - Main Branch Renovation						
Layer I of I	Nen Eibroug Meteriale	Other Fibreus Meterioles <sup>0</sup>	Achastas Typa: %				
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type. //				
	Gypsum/Binder, Fine particles	Cellulose 11%	None Detected ND				
		Glass fibers 2%					

Lab ID: 23083206 Client Sample #: 41286.038-008

Location: Tacoma Public Library - Main Branch Renovation

Sampled by. Onem	
Analyzed by: Alex Shea Da	e:08/28/2023
Reviewed by: Munaf Khan Da	:08/29/2023 Munaf Khan, Laboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government



Batch #: 2313673.00

Client Project #: 41286.038

Date Received: 8/25/2023 Samples Received: 29 Samples Analyzed: 29

Method: EPA/600/R-93/116

Munaf Khan, Laboratory Director

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Layer 1 of 2 Description: White compacted powdery material Asbestos Type: % Other Fibrous Materials:% Non-Fibrous Materials: **None Detected ND** Calcareous binder, Fine particles None Detected ND Layer 2 of 2 **Description:** White chalky material with paper Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% **None Detected ND** Gypsum/Binder, Fine particles Cellulose 14% Glass fibers 2% Lab ID: 23083207 Client Sample #: 41286.038-009 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Tan brittle mastic with paint Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% None Detected ND Mastic/Binder, Paint, Fine particles Cellulose <1% Lab ID: 23083208 Client Sample #: 41286.038-010 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Gray cementitious material with granules and paint Asbestos Type: % Non-Fibrous Materials: **Other Fibrous Materials:%** None Detected ND Cement/Binder, Granules, Paint None Detected ND Fine grains Lab ID: 23083209 Client Sample #: 41286.038-011 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Gray cementitious material with granules, rubber and paint Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% None Detected ND Cement/Binder, Granules, Rubber/Binder Glass fibers 8% Paint, Fine grains Sampled by: Client Analyzed by: Alex Shea Date: 08/28/2023 Reviewed by: Munaf Khan Date: 08/29/2023

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# 🌼 NVL

Batch #: 2313673.00

Client Project #: 41286.038

Date Received: 8/25/2023 Samples Received: 29 Samples Analyzed: 29

Method: EPA/600/R-93/116

# **Bulk Asbestos Fibers Analysis**

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Lab ID: 23083210 Client Sample #: 41286.038-012 Location: Tacoma Public Library - Main Branch Renovation Description: Off white cementitious material with granules Laver 1 of 2 Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% None Detected ND Cement/Binder, Granules, Fine grains None Detected ND **Description:** Layer 2 of 2 Other Fibrous Materials:% Asbestos Type: % Non-Fibrous Materials: Lab ID: 23083211 Client Sample #: 41286.038-013 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 2 Description: White cementitious material with granules Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% None Detected ND Cement/Binder, Granules, Fine grains None Detected ND Layer 2 of 2 Description: Tan soft mastic Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% **None Detected ND** Mastic/Binder, Fine particles Cellulose <1% Lab ID: 23083212 Client Sample #: 41286.038-014 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Tan soft mastic Asbestos Type: % Non-Fibrous Materials: Other Fibrous Materials:% Mastic/Binder, Fine particles 1% None Detected ND Cellulose Client Sample #: 41286.038-015 Lab ID: 23083213

Location: Tacoma Public Library - Main Branch Renovation

Sampled by: Client		H D H
Analyzed by: Alex Shea	Date: 08/28/2023	- aver them
Reviewed by: Munaf Khan	Date: 08/29/2023	Munaf Khan, Laboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government



# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Batch #: 2313673.00 Client Project #: 41286.038 Date Received: 8/25/2023 Samples Received: 29 Samples Analyzed: 29 Method: EPA/600/R-93/116

Munaf Khan, Laboratory Director

Non-Fibrous Materials::       Other Fibrous Materials::%       Asbestos Type: %         Mastic/Binder, Fine particles       Cellulose 1%       None Detected ND         Lab ID: 23083214       Client Sample #: 41286.038-016       Kon-Fibrous Materials:       None Detected ND         Layer 1 of 3       Description: Gray ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials::%       Asbestos Type: %         Layer 2 of 3       Description: Gray brittle material with granules       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 3 of 3       Description: White brittle material with granules       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Lab ID: 23083215       Client Sample #: 41286.038-017       None Detected ND       None Detected ND         Location: Tacoma Public Library - Main Branch Renovation       Layer 1 of 1       Description: Beige ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Location: Tacoma Public Library - Main Branch Renovation       Layer 1 of 1       Description: Beige ceramic tile       Non-Fibrous Materials:       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       None Detected ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       None Detected ND       <	Layer 1 of 1	Description: Gray/tan soft mastic		
Mastic/Binder, Fine particles       Cellulose       1%       None Detected ND         Lab ID: 23083214       Client Sample #: 41286.038-016       Location: Tacoma Public Library - Main Branch Renovation       Asbestos Type: %         Layer 1 of 3       Description: Gray ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 2 of 3       Description: Gray brittle material with granules       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 3 of 3       Description: White brittle material with granules       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 3 of 3       Description: White brittle material with granules       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 1 of 1       Description: White brittle material with granules       None Detected ND       None Detected ND         Layer 1 of 1       Description: Beige ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Lab ID: 23083216       Client Sample #: 41286.038-017       None Detected ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       None Detected ND       None Detected ND         Layer 1 of 2       Description: Brown vinyl material       Non-Fibrous Materials:<		Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Lab ID: 23083214       Client Sample #: 41286.038-016         Location: Tacoma Public Library - Main Branch Renovation       Asbestos Type: %         Layer 1 of 3       Description: Gray ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 2 of 3       Description: Gray brittle material with granules       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 3 of 3       Description: White brittle material with granules       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 3 of 3       Description: White brittle material with granules       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 1 of 1       Description: White brittle material with granules       None Detected ND       None Detected ND         Layer 1 of 1       Description: Beige ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 1 of 1       Description: Beige ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Lab ID: 23083216       Client Sample #: 41286.038-017       None Detected ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       None Detected ND       None Detected ND         Layer 1 of 2 <th></th> <th>Mastic/Binder, Fine particles</th> <th>Cellulose 1%</th> <th>None Detected ND</th>		Mastic/Binder, Fine particles	Cellulose 1%	None Detected ND
Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 3 Description: Gray ceramic tile Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % Ceramic/Binder, Fine particles None Detected ND None Detected ND Layer 2 of 3 Description: Gray brittle material with granules Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % Binder/Filler, Granules, Fine grains None Detected ND None Detected ND Layer 3 of 3 Description: White brittle material with granules Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % Binder/Filler, Granules, Fine grains None Detected ND None Detected ND Layer 3 of 3 Description: White brittle material with granules Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % Binder/Filler, Granules, Fine grains Cellulose <1% None Detected ND Lab ID: 23083215 Client Sample #: 41286.038-017 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Beige ceramic tile Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % None Detected ND Lab ID: 23083216 Client Sample #: 41286.038-018 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 2 Description: Brown vinyl material Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % None Detected ND None Detected ND None Detected ND Sampled by: Client Analyzed by: Client	Lab ID: 230832	Client Sample #: 41286.038-016		
Layer 1 of 3 Description: Gray ceramic tile Non-Fibrous Materials: Ceramic/Binder, Fine particles None Detected ND Layer 2 of 3 Description: Gray brittle material with granules Non-Fibrous Materials: Non-Fibrous Materials: Non-Fibrous Materials: None Detected ND Ceramic/Binder/Filler, Granules, Fine grains None Detected ND Layer 3 of 3 Description: White brittle material with granules Non-Fibrous Materials: Non-Fibrous Materials: Mon-Fibrous Materials: Non-Fibrous Materials: Non-Fibrous Materials: Non-Fibrous Materials: Non-Fibrous Materials: None Detected ND Lab ID: 23083215 Client Sample #: 41286.038-017 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Beige ceramic tile Non-Fibrous Materials: Ceramic/Binder, Fine particles None Detected ND None Detected ND	Location: Tacon	na Public Library - Main Branch Renovation		
Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Ceramic/Binder, Fine particles       None Detected       ND         Layer 2 of 3       Description: Gray brittle material with granules       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       None Detected       ND       None Detected ND         Layer 3 of 3       Description: White brittle material with granules       None-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Lab ID: 23083215       Client Sample #: 41286.038-017       None Detected ND       None Detected ND         Layer 1 of 1       Description: Beige ceramic tile       None-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 1 of 2       Description: Brown vinyl material       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 1 of 2       Description: Brown vinyl material       Non-Fibrous Materials:       Other Fibrous Materia	Layer 1 of 3	Description: Gray ceramic tile		
Ceramic/Binder, Fine particles       None Detected       ND         Layer 2 of 3       Description: Gray brittle material with granules Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Binder/Filler, Granules, Fine grains       None Detected       ND       None Detected       ND         Layer 3 of 3       Description: White brittle material with granules Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Binder/Filler, Granules, Fine grains       Other Fibrous Materials:       Asbestos Type: %         Binder/Filler, Granules, Fine grains       Cellulose <1%       None Detected ND         Lab ID: 23083215       Client Sample #: 41286.038-017       None Detected ND       None Detected ND         Layer 1 of 1       Description: Beige ceramic tile Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Layer 1 of 2       Description: Brown vinyl material Location: Tacoma Public Library - Main Branch Renovation       None Detected       ND       None Detected ND         Layer 1 of 2       Description: Brown vinyl material Non-Fibrous Materials:       Other Fibrous Materials:% None Detected ND       Asbestos Type: % None Detected ND         Sampled by: Client Analyzed by: Alwy Shace       Detwo/9//9//2022       Mark       Asbestos Type: % None Detected ND <th></th> <th>Non-Fibrous Materials:</th> <th>Other Fibrous Materials:%</th> <th>Asbestos Type: %</th>		Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Layer 2 of 3       Description: Gray brittle material with granules       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       None Detected ND       None Detected ND         Layer 3 of 3       Description: White brittle material with granules       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Lab ID: 23083215       Client Sample #: 41286.038-017       Cellulose <1%       None Detected ND         Layer 1 of 1       Description: Beige ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Lab ID: 23083216       Client Sample #: 41286.038-018       Other Fibrous Materials:%       Asbestos Type: %         Layer 1 of 2       Description: Brown vinyl material       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       Non-Fibrous Materials:%       Asbestos Type: %         Layer 1 of 2       Description: Brown vinyl material       Non-Fibrous Materials:		Ceramic/Binder, Fine particles	None Detected ND	None Detected ND
Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Binder/Filler, Granules, Fine grains       None Detected ND       None Detected ND         Layer 3 of 3       Description: White brittle material with granules Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Binder/Filler, Granules, Fine grains       Other Fibrous Materials:%       Asbestos Type: %         Lab ID: 23083215       Client Sample #: 41286.038-017       None Detected ND         Location: Tacoma Public Library - Main Branch Renovation       None Detected ND         Layer 1 of 1       Description: Beige ceramic tile Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Lab ID: 23083216       Client Sample #: 41286.038-018       None Detected ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       None Detected ND       None Detected ND         Layer 1 of 2       Description: Brown vinyl material       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Vinyl/Binder, Fine particles       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%	Layer 2 of 3	Description: Gray brittle material with granules		
Binder/Filler, Granules, Fine grains       None Detected       ND         Layer 3 of 3       Description: White brittle material with granules Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Binder/Filler, Granules, Fine grains       Cellulose <1%       None Detected ND         Lab ID: 23083215       Client Sample #: 41286.038-017       Cellulose <1%       None Detected ND         Layer 1 of 1       Description: Beige ceramic tile Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Ceramic/Binder, Fine particles       None Detected ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       None Detected ND         Location: Tacoma Public Library - Main Branch Renovation       None Detected ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       None Detected ND       None Detected ND         Layer 1 of 2       Description: Brown vinyl material       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %       None Detected ND         Sampled by: Client       Non-Fibrous Materials:       Other Fibrous 3%		Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Layer 3 of 3       Description: White brittle material with granules Non-Fibrous Materials:       Other Fibrous Materials::% Cellulose <1%       Asbestos Type: % None Detected ND         Lab ID: 23083215       Client Sample #: 41286.038-017 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1       Description: Beige ceramic tile Non-Fibrous Materials:       Asbestos Type: % Other Fibrous Materials::%         Lab ID: 23083216       Client Sample #: 41286.038-018 Location: Tacoma Public Library - Main Branch Renovation       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018 Location: Tacoma Public Library - Main Branch Renovation       None Detected ND         Layer 1 of 2       Description: Brown vinyl material Non-Fibrous Materials:       Other Fibrous Materials:% None Detected ND         Sampled by: Client Analyzed by: Alow Shop       Sampled by: Client       Mone Shop		Binder/Filler, Granules, Fine grains	None Detected ND	None Detected ND
Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Binder/Filler, Granules, Fine grains       Cellulose <1%       None Detected ND         Lab ID: 23083215       Client Sample #: 41286.038-017       Cellulose <1%	Layer 3 of 3	Description: White brittle material with granules		
Binder/Filler, Granules, Fine grains       Cellulose <1%		Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Lab ID: 23083215       Client Sample #: 41286.038-017         Location: Tacoma Public Library - Main Branch Renovation         Layer 1 of 1       Description: Beige ceramic tile         Non-Fibrous Materials:       Other Fibrous Materials:%         Asbestos Type: %         Ceramic/Binder, Fine particles       None Detected       ND         Lab ID: 23083216       Client Sample #: 41286.038-018         Location: Tacoma Public Library - Main Branch Renovation       None Detected       ND         Layer 1 of 2       Description: Brown vinyl material       Other Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:       Mone Detected ND         Sampled by: Client       Mone Detected ND       Mone Detected ND		Binder/Filler, Granules, Fine grains	Cellulose <1%	None Detected ND
Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 1 Description: Beige ceramic tile Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % Ceramic/Binder, Fine particles None Detected ND None Detected ND Lab ID: 23083216 Client Sample #: 41286.038-018 Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 2 Description: Brown vinyl material Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % Vinyl/Binder, Fine particles Cellulose 3% None Detected ND	Lab ID: 230832	Client Sample #: 41286.038-017		
Layer 1 of 1       Description: Beige ceramic tile       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:       None Detected       ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       Location: Tacoma Public Library - Main Branch Renovation       Asbestos Type: %         Layer 1 of 2       Description: Brown vinyl material       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Sampled by: Client       Mone Shop       Dete: 08/28/2023       Mone Detected ND	Location: Tacon	na Public Library - Main Branch Renovation		
Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Ceramic/Binder, Fine particles       None Detected       ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       Location: Tacoma Public Library - Main Branch Renovation       Asbestos Type: %         Layer 1 of 2       Description: Brown vinyl material       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Non-Fibrous Materials:       Other Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Sampled by: Client       Sampled by: Client       Mone Detected ND       Mone Detected ND	Layer 1 of 1	Description: Beige ceramic tile		
Ceramic/Binder, Fine particles       None Detected       ND       None Detected ND         Lab ID: 23083216       Client Sample #: 41286.038-018       Location: Tacoma Public Library - Main Branch Renovation       Layer 1 of 2       Description: Brown vinyl material         Layer 1 of 2       Description: Brown vinyl material:       Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Vinyl/Binder, Fine particles       Cellulose       3%       None Detected ND		Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Lab ID: 23083216       Client Sample #: 41286.038-018         Location: Tacoma Public Library - Main Branch Renovation         Layer 1 of 2       Description: Brown vinyl material         Non-Fibrous Materials:       Other Fibrous Materials:%         Asbestos Type: %         Vinyl/Binder, Fine particles       Cellulose         Sampled by: Client       Mone Detected ND		Ceramic/Binder, Fine particles	None Detected ND	None Detected ND
Location: Tacoma Public Library - Main Branch Renovation Layer 1 of 2 Description: Brown vinyl material Non-Fibrous Materials: Other Fibrous Materials:% Asbestos Type: % Vinyl/Binder, Fine particles Cellulose 3% None Detected ND  Sampled by: Client Analyzed by: Alax Shaa	Lab ID: 230832	Client Sample #: 41286.038-018		
Layer 1 of 2       Description: Brown vinyl material         Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Vinyl/Binder, Fine particles       Cellulose 3%       None Detected ND         Sampled by: Client       Marxie M	Location: Tacon	na Public Library - Main Branch Renovation		
Non-Fibrous Materials:       Other Fibrous Materials:%       Asbestos Type: %         Vinyl/Binder, Fine particles       Cellulose       3%       None Detected ND         Sampled by: Client       Mark Shoo       Mark Shoo       Mark Shoo	Layer 1 of 2	Description: Brown vinyl material		
Vinyl/Binder, Fine particles     Cellulose     3%     None Detected ND       Sampled by: Client     Mark Shop     Mark Shop     Mark Shop		Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Sampled by: Client		Vinyl/Binder, Fine particles	Cellulose 3%	None Detected ND
Sampled by: Client				
Analyzed by: Alax Shaa	Commission in the	n Olivert		
	Sampled by		28/2022 Hune	2 than

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

Date: 08/29/2023

Reviewed by: Munaf Khan



Batch #: 2313673.00

Client Project #: 41286.038

Date Received: 8/25/2023 Samples Received: 29 Samples Analyzed: 29

Method: EPA/600/R-93/116

# Bulk Asbestos Fibers Analysis

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

L

Project Location: Tacoma Public Library - Main Branch Renovation

Layer 2 of 2	Description: Gray soft mastic with fibrous mesh		
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Mastic/Binder, Fine particles	Cellulose 41%	None Detected ND
Lab ID: 230832	Client Sample #: 41286.038-019		
Location: Tacom	na Public Library - Main Branch Renovation		
Layer 1 of 2	Description: Beige vinyl material		
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Vinyl/Binder, Fine particles	None Detected ND	None Detected ND
Layer 2 of 2	Description: Beige fibrous backing with mastic		
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Binder/Filler, Mastic/Binder, Fine particles	Cellulose 52%	None Detected ND
		Glass fibers 3%	
Lab ID: 230832	Client Sample #: 41286.038-020		
Location: Tacom	na Public Library - Main Branch Renovation		
Layer 1 of 2	Description: Brown rubbery material		
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Rubber/Binder, Fine particles	None Detected ND	None Detected ND
Layer 2 of 2	Description: Beige hard mastic		
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Mastic/Binder, Fine particles	Cellulose <1%	None Detected ND
Lab ID: 230832	Client Sample #: 41286.038-021		
Location: Tacom	na Public Library - Main Branch Renovation		
Layer 1 of 2	Description: Gray rubbery material		
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Rubber/Binder, Fine particles	None Detected ND	None Detected ND
Sampled by	: Client	N D	
Analyzed by	: Alex Shea Date: 08/	(28/2023 Mune	of about
Reviewed by	: Munaf Khan Date: 08/	/29/2023 Munaf Khan, L	aboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government



# **Bulk Asbestos Fibers Analysis**

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Batch #: 2313673.00 Client Project #: 41286.038 Date Received: 8/25/2023 Samples Received: 29 Samples Analyzed: 29 Method: EPA/600/R-93/116

Layer 2 of 2	Description: Beige hard mastic		
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Mastic/Binder, Fine particles	None Detected ND	None Detected ND
Lab ID: 230832	Client Sample #: 41286.038-022		
Location: Tacom	a Public Library - Main Branch Renovation		
Layer 1 of 1	Description: Yellow fluffy fibrous material with p	aper and foil	
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Binder/Filler, Metal foil	Glass fibers 81%	None Detected ND
		Cellulose 11%	
Lab ID: 230832 Location: Tacom Layer 1 of 1	21 Client Sample #: 41286.038-023 na Public Library - Main Branch Renovation Description: Yellow fluffy fibrous material with p	aper and foil	
	Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
	Binder/Filler, Metal foil	Glass fibers 80%	None Detected ND
		Cellulose 10%	
Lab ID: 230832 Location: Tacom Layer 1 of 1	22 Client Sample #: 41286.038-024 na Public Library - Main Branch Renovation Description: White rubbery material with paint Non-Fibrous Materials: Rubber/Binder, Paint, Fine particles	Other Fibrous Materials:% None Detected ND	Asbestos Type: % None Detected ND
Lab ID: 230832 Location: Tacom	23 Client Sample #: 41286.038-025 na Public Library - Main Branch Renovation		

Sampled by: ClientDate: 08/28/2023Analyzed by: Alex SheaDate: 08/29/2023Reviewed by: Munaf KhanDate: 08/29/2023

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government



# **Bulk Asbestos Fibers Analysis**

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Batch #: 2313673.00 Client Project #: 41286.038 Date Received: 8/25/2023 Samples Received: 29 Samples Analyzed: 29 Method: EPA/600/R-93/116

Layer 1 of 1 Description: Gray rubbery material		
Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Rubber/Binder, Fine particles	Cellulose <1%	None Detected ND
Lab ID: 23083224 Client Sample #: 41286.038-026		
Location: Tacoma Public Library - Main Branch Renovation		
Layer 1 of 1         Description: White rubbery material with paint		
Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Rubber/Binder, Paint, Fine particles	Cellulose <1%	None Detected ND
Lab ID: 23083225 Client Sample #: 41286.038-027		
Location: Tacoma Public Library - Main Branch Renovation		
Layer 1 of 1 Description: Gray brittle material		
Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Binder/Filler, Fine particles	Cellulose 7%	None Detected ND
Lab ID: 23083226 Client Sample #: 41286.038-028		
Location: Tacoma Public Library - Main Branch Renovation		
Layer 1 of 1 Description: White rubbery material		
Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Rubber/Binder, Fine particles	None Detected ND	None Detected ND
Lab ID: 23083227 Client Sample #: 41286.038-029		
Location: Tacoma Public Library - Main Branch Renovation		
Layer 1 of 1 Description: White brittle material		
Non-Fibrous Materials:	Other Fibrous Materials:%	Asbestos Type: %
Binder/Filler, Fine particles, Fine grains	Cellulose 1%	None Detected ND

Sampled by: ClientDate: 08/28/2023Image: ClientAnalyzed by: Alex SheaDate: 08/28/2023Image: ClientReviewed by: Munaf KhanDate: 08/29/2023Munaf Khan, Laboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# ASBESTOS LABORATORY SERVICES



Rush Samples \_\_\_\_\_

Company PBS Environmental - Seattle Address 214 E Galer St. Suite. 300 Seattle, WA 98102 Project Manager Mr. Ryan Hunter Phone (206) 233-9639

NVL E	Batch N	lumber 23	313673	3.00
ТАТ	2 Day	s		AH No
Rush	TAT			
Due D	ate	8/29/2023	Time	4:00 PM
Email	ryan.l	nunter@pbs	usa.com	L
Fax	(866)	727-0140		

Project Name/Number: 41286.038

**Cell** (484) 269-2138

Project Location: Tacoma Public Library - Main Branch Renovation

### Subcategory PLM Bulk

Item Code ASB-02

EPA 600/R-93-116 Asbestos by PLM <bulk>

### Total Number of Samples 29

Lab ID Sample ID Description A/R 1 23083199 41286.038-001 А 2 23083200 41286.038-002 А 3 23083201 41286.038-003 А 4 23083202 41286.038-004 А 5 23083203 41286.038-005 Composite А 23083204 Composite 6 41286.038-006 А 7 23083205 41286.038-007 Composite А 8 23083206 41286.038-008 А 9 23083207 41286.038-009 А 10 23083208 41286.038-010 A 11 23083209 41286.038-011 А 12 23083210 41286.038-012 А 13 23083211 41286.038-013 А 14 23083212 А 41286.038-014 15 23083213 41286.038-015 А 16 23083214 41286.038-016 А 17 23083215 41286.038-017 А 41286.038-018 18 23083216 А

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				
Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	8/25/23	1600
Analyzed by	Alex Shea		NVL	8/28/23	
Results Called by					
Faxed Emailed					
Special					

Date: 8/25/2023 Time: 4:05 PM Entered By: Kelly AuVu

# ASBESTOS LABORATORY SERVICES



Rush Samples \_\_\_\_\_

Company PBS Environmental - Seattle Address 214 E Galer St. Suite. 300 Seattle, WA 98102 Project Manager Mr. Ryan Hunter Phone (206) 233-9639

NVL Batch Number 2313673.00						
TAT 2 Days		AH No				
Rush TAT						
Due Date 8/29/	2023 Time	4:00 PM				
Email ryan.huntei	@pbsusa.com	L				
Fax (866) 727-0	0140					

Project Name/Number: 41286.038

**Cell** (484) 269-2138

Project Location: Tacoma Public Library - Main Branch Renovation

### Subcategory PLM Bulk

Item Code ASB-02

EPA 600/R-93-116 Asbestos by PLM <bulk>

### Total Number of Samples 29

#### Lab ID Sample ID Description A/R 19 23083217 41286.038-019 А 20 23083218 41286.038-020 А 21 23083219 41286.038-021 А 22 23083220 41286.038-022 А 23 23083221 41286.038-023 А 24 23083222 41286.038-024 А 25 23083223 41286.038-025 А 26 23083224 A 41286.038-026 27 23083225 41286.038-027 А 28 23083226 41286.038-028 А 29 23083227 41286.038-029 А

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				
Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	8/25/23	1600
Analyzed by	Alex Shea		NVL	8/28/23	
Results Called by					
Faxed Emailed					
Special Instructions:					

Date: 8/25/2023 Time: 4:05 PM Entered By: Kelly AuVu



# LABORATORY C 2313673

Project: <u>Tacoma Public</u>	Library – Main Branch Renovation	Project #: <u>41286.038</u> Page 1 of 2
Analysis requested:	PLM	Date: 8/25/23
Relinq'd by/Signature:	Hiddoo	Date/Time: 8/25/23
Received by/Signature:	Jelindeen e nur	Date/Time: 8/22/23 1605
	Email ALL INVOICES to: seattleap@	<u>@pbsusa.com</u>
E-mail results to: Willem Mager Gregg Middaugh Mark Hiley Tim Ogden Ryan Hunter Janet Murphy	<ul> <li>Toan Nguyen</li> <li>Peter Stensland</li> <li>Claire Tsai</li> <li>Holly Tuttle</li> <li>Ferman Fletcher</li> <li>Cameron Budnick</li> </ul>	<ul> <li>Mae Reilly</li> <li>Nick San</li> <li>Kameron DeMonnin</li> </ul>
TURN AROUND TIME:         1 Hour         2 Hours         4 Hours	<ul><li>24 Hours</li><li>48 Hours</li></ul>	3-5 Days     Other

# NOTE: \*\*\*Composite if positive

	SAMPLE DATA FORM				
Sample #	Material	Location	Lab		
41286.038-001	2' x 2' solid lay-in ceiling tile	Carnegie building level 1 cascade room B	NVL		
-002	2' x 2; solid lay-in ceiling tile	Main building level 2 NW section			
-003	2' x 2' solid lay-in ceiling tile	Main building level 1 SW			
-004	2' x 2', 1' square design lay-in ceiling tile	Carnegie building level 1 N end			
-005	***Gypsum wallboard with joint compound	Carnegie building level 1 cascade room A			
-006	***Gypsum wallboard with joint compound	Main building level 2 near restrooms			
-007	***Gypsum wallboard with joint compound	Main building level 2 NW meeting room			
-008	***Gypsum wallboard with joint compound	Main building level 1 SE offices			
-009	Wood frame wall panel brown mastic on gypsum wallboard	Carnegie building level 1 N end			
-010	Exterior insulation finishing system	Main building exterior			
-011	Exterior insulation finishing system	Main building exterior SW			
-012	Lightweight concrete flooring under carpet squares	Carnegie building level 1 SW cascade room A			
-013	Lightweight concrete flooring under carpet squares	Carnegie building level 1 community room			
-014	Yellow carpet mastic	Carnegie building level 2 stairs	1		
-015	Yellow carpet mastic	Main building level 2 NE			

214 EAST GALER STREET, SUITE 300, SEATTLE, WA 98102 . 206.233.9639 MAIN . 866.727.0140 FAX . PBSUSA.COM



# LABORATORY CH 2313673

Project: <u>Tacoma Public Library – Main Branch Renovation</u>

Project #: 41286.038 Page 2 of 2

Analysis requested: \_\_\_\_\_ PLM

Date: 8/25/23

6	SAMPLE DATA	A FORM	
Comple#	Material	Location	Lab
-016 C	Ceramic floor and will tile with grout and	Carnegie building level 1 men's restroom	NVL
-017	Ceramic floor tile	Carnegie building level 1 lobby/entrance	
-018	Brown sheet vinyl flooring with gray	Main building level 2 restrooms	
019	Speckled white sheet vinyl flooring	Carnegie building level 1 kitchen	
-020	4" tan cove base with cream mastic	Main building level 2 NW meeting room	
-021	4" gray cove base with cream mastic	Carnegie building level 1 community room	
-022	White lagging with fiberglass insulation	Main building level 2 central by staircase	
-023	HVAC duct insulation	Main building level 1 SW	
020	White sink caulking	Main building level 2 restrooms	
-025	HVAC duct caulking	Main building level 2 central by staircase	
-026	Door frame caulk	Main building level 2 W side	
027	Grav sink undercoating	Carnegie building level 1 kitchen	
-028	Urinal caulk	Carnegie building level 1 men's restroom	
-029	Plaster patching material	Carnegic building level 1 N ene	-

September 13, 2023



Ryan Hunter PBS Environmental - Seattle 214 E Galer St. Suite. 300 Seattle, WA 98102

### RE: Bulk Asbestos Fiber Analysis; NVL Batch # 2314599.00

Client Project: 41286.038 Location: Tacoma Public Library - Main Branch Renovation

Dear Mr. Hunter,

Enclosed please find test results for the 5 sample(s) submitted to our laboratory for analysis on 9/13/2023.

Examination of these samples was conducted for the presence of identifiable asbestos fibers using polarized light microscopy (PLM) with dispersion staining in accordance with **U. S. EPA 40 CFR Appendix E to Subpart E of Part 763**, Interim Method for the Determination of Asbestos in Bulk Insulation Samples and **EPA 600/R-93/116**, Method for the Determination of Asbestos in Bulk Building Materials.

For samples containing more than one separable layer of materials, the report will include findings for each layer (labeled Layer 1 and Layer 2, etc. for each individual layer). The asbestos concentration in the sample is determined by calibrated visual estimation.

For those samples with asbestos concentrations between 1 and 10 percent based on visual estimation, the EPA recommends a procedure known as point counting (NESHAPS, 40 CFR Part 61). Point counting is a statistically more accurate means of quantification for samples with low concentrations of asbestos.

The detection limit for the calibrated visual estimation is <1%, 400 point counts is 0.25% and 1000 point counts is 0.1%

Samples are archived for two weeks following analysis. Samples that are not retrieved by the client are discarded after two weeks.

Thank you for using our laboratory services. Please do not hesitate to call if there is anything further we can assist you with.

Sincerely,

Munaf Khan, Laboratory Director

Testing

Enc.: Sample Results

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227) 4708 Aurora Avenue North | Seattle, WA 98103-6516

# 🌼 NVL

Batch #: 2314599.00

Client Project #: 41286.038

Date Received: 9/13/2023 Samples Received: 5 Samples Analyzed: 5

Method: EPA/600/R-93/116

# **Bulk Asbestos Fibers Analysis**

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Lab ID: 23088	852 Client Sample #: 41286.03	8-029		
Location: Tacor	ma Public Library - Main Branch Renovation	on		
Layer 1 of 1	Description: Yellow/tan brittle mastic wi	th debris		
	Non-Fibrous Materia	ls: Other Fib	rous Materials:%	Asbestos Type: %
	Fine particles, Mastic/Binder, Deb	ris	Cellulose 9%	None Detected ND
	Wood chi	ps Syntl	hetic fibers 2%	
Lab ID: 23088 Location: Tacor	853 Client Sample #: 41286.03 ma Public Library - Main Branch Renovation	8 <b>-030</b> on		
Layer 1 of 1	Description: Brown/beige brittle mastic	with paint and wood	flakes	
	Non-Fibrous Materia	ls: Other Fib	rous Materials:%	Asbestos Type: %
	Fine particles, Mastic/Binder, Pa	int	Cellulose 12%	None Detected ND
	Wood flak	es		
Lab ID: 23088	854 Client Sample #: 41286.03	8-031		
Location: Tacor	ma Public Library - Main Branch Renovation	on		
Layer 1 of 1	Description: Beige fibrous material with	white thin powdery i	material and white pair	nt
	Non-Fibrous Materia	ls: Other Fib	rous Materials:%	Asbestos Type: %
	Paint, Binder/Filler, Fine particle	es	Cellulose 69%	None Detected ND
	Perl	ite		
Lab ID: 23088 Location: Tacor	855Client Sample #: 41286.03ma Public Library - Main Branch Renovation	<b>:8-032</b> on		
Layer 1 of 1	Description: Gray/off-white crumbly ma	terial		
	Non-Fibrous Materia	ls: Other Fib	rous Materials:%	Asbestos Type: %
	Binder/Filler, Fine particles, Fine grai	ns	Cellulose 12%	None Detected ND
		Syntl	hetic fibers 4%	
Sampled by	r Client		• 0	
Analyzed by	/: Muhammad Yousuf	<b>Date:</b> 09/13/2023	Kuns	2 abon
Reviewed by	/: Munaf Khan	Date: 09/13/2023	Munaf Khan, L	aboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government

# **Bulk Asbestos Fibers Analysis**

By Polarized Light Microscopy

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

## Lab ID: 23088856 Client Sample #: 41286.038-033

Location: Tacoma Public Library - Main Branch Renovation

 Layer 1 of 1
 Description: Brown/red soft rubbery material with debris

Non-Fibrous Materials:

Fine particles, Caulking compound, Debris

Sand, Mineral grains

Other Fibrous Materials:% Cellulose 2%

Synthetic fibers <1%

Asbestos Type: % None Detected ND

Sampled by: Client Analyzed by: Muhammad Yousuf Reviewed by: Munaf Khan

Date: 09/13/2023 Date: 09/13/2023 Munaf Khan, Laboratory Director

Note: If samples are not homogeneous, then subsamples of the components were analyzed separately. All bulk samples are analyzed using both EPA 600/R-93/116 and EPA 40 CFR Appendix E to Subpart E of Part 763 with the following measurement uncertainties for the reported % Asbestos (1%=0-3%, 5%=1-9%, 10%=5-15%, 20%=10-30%, 50%=40-60%). This report relates only to the items tested. If sample was not collected by NVL personnel, then the accuracy of the results is limited by the methodology and acuity of the sample collector. This report shall not be reproduced except in full, without written approval of NVL Laboratories, Inc. It shall not be used to claim product endorsement by NVLAP or any other agency of the US Government



Batch #: 2314599.00

Client Project #: 41286.038

Date Received: 9/13/2023 Samples Received: 5 Samples Analyzed: 5

Method: EPA/600/R-93/116



page 3 of 5

# ASBESTOS LABORATORY SERVICES



Company PBS Environmental - Seattle Address 214 E Galer St. Suite. 300 Seattle, WA 98102 Project Manager Mr. Ryan Hunter Phone (206) 233-9639

### NVL Batch Number 2314599.00 TAT 1 Day AH No Rush TAT 8:30 AM Due Date 9/14/2023 Time Email ryan.hunter@pbsusa.com Fax (866) 727-0140

Project Name/Number: 41286.038

Cell (484) 269-2138

Project Location: Tacoma Public Library - Main Branch Renovation

### Subcategory PLM Bulk

Item Code ASB-02

EPA 600/R-93-116 Asbestos by PLM <bulk>

### Total Number of Samples 5

#### Rush Samples \_\_\_\_\_ Lab ID Sample ID Description A/R 23088852 1 41286.038-029 А 2 23088853 41286.038-030 А 3 23088854 41286.038-031 А 4 23088855 41286.038-032 А 5 23088856 41286.038-033 А

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Drop Box				
Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	9/13/23	830
Analyzed by	Muhammad Yousuf		NVL	9/13/23	
Results Called by					
Faxed Emailed					
Special					
Instructions:					

Date: 9/13/2023 Time: 8:46 AM Entered By: Kelly AuVu



# LABORATORY 2314599

Project: <u>Tacoma Public</u>	Library – Main Branch Renovation	Project #: <u>41286.038</u> Page 1 of 1
Analysis requested:P	PLM	Date: 09/12/2023
Relinq'd by/Signature:	Ryan Hunter / Ryntt	Date/Time: <u>09/12/2023</u>
Received by/Signature:_	Kempen e Mn	Date/Time: 9 1323 830 Dh
	Email ALL INVOICES to: seattleap@p	pbsusa.com
E-mail results to:		
🔲 Willem Mager	Allison Welch	Cameron Budnick
Gregg Middaugh	🔲 Toan Nguyen	🔲 Mae Reilly
Mark Hiley	Peter Stensland	Nick San
Tim Oaden	Claire Tsai	Kameron DeMonnin
Ryan Hunter	Holly Tuttle	
Prudy Stoudt-McRae	Mike Smith	
Janet Murphy	Ferman Fletcher	
TURN AROUND TIME:		
🔲 1 Hour	🔀 24 Hours	3-5 Days
2 Hours	48 Hours	Other
4 Hours		

	SAMPLE DATA FORM			
Sample #	Material	Location	Lab	
41286.038-029	Yellow Mastic at Rubber Stair Tread	Main Building – Central Stairs	NVL	
41286.038-030	Brown Mastic at Wood Wall Slats	Main Building – Level 2	1	
41286.038-031	White 2'x2' Lay-in Ceiling Tile	Mian Building – Level 1 South Offices		
41286.038-032	Gray Sink Undercoat	Main Building – Level 2 Storage		
41286.038-033	Brown Exterior Window Frame Caulk	Main Building – West Elevation		
			-	

214 EAST GALER STREET, SUITE 300, SEATTLE, WA 98102 = 206.233.9639 MAIN = 866.727.0140 FAX = PBSUSA.COM

# **APPENDIX B**

# AA Lead Paint Chip Sampling Information

AA Lead Paint Chip Sample Inventory AA Lead Paint Chip Laboratory Data Sheets AA Lead Paint Chip Chain-of-Custody Documentation

# Tacoma Public Library - Main Branch Renovation

City of Tacoma

### AA LEAD PAINT CHIP SAMPLE INVENTORY

PBS Sample #	Paint Color / Component or Substrate	Sample Location	<u>Results (mg/kg)</u>	<u>Results (%)</u>	<u>Lab</u>
41286.038-Pb01	Off-white / Gypsum Wallboard / Wall	Main Building level 2 northest	<58	<0.0058	NVL
41286.038-Pb02	Gray / Gypsum Wallboard / Wall	Carnegie Building level 1 southwest Cascade Room A	<48	<0.0048	NVL
41286.038-Pb03	Lime green / Gypsum Wallboard / Wall	Main Building level 1 southeast offices	<130	<0.013	NVL
41286.038-Pb04	Off-white / Gypsum Wallboard / Wall	Main Building Level 1 at Main Desk	<51	<0.0051	NVL
41286.038-Pb05	White / Gypsum Wallboard / Wall	Carnegie Building Level 2 corridor	<54	<0.0054	NVL
41286.038-Pb06	Gray / Metal / Frame	Main Building Level 2 north storage	<57	<0.0057	NVL
41286.038-Pb07	Red / Metal / Frame	Main Building west elevation	<120	<0.012	NVL
41286.038-Pb08	Gray / EIFS / Wall	Main Building west elevation	<51	<0.0051	NVL

August 29, 2023

Ryan Hunter **PBS Environmental - Seattle** 214 E Galer St. Suite. 300 Seattle, WA 98102



# NVL Batch # 2313675.00

### RE: Total Metal Analysis Method: EPA 7000B Lead by FAA <paint> Item Code: FAA-02

Client Project: 41286.038 Location: Tacoma Public Library - Main Branch Renovation

Dear Mr. Hunter,

NVL Labs received 3 sample(s) for the said project on 8/25/2023. Preparation of these samples was conducted following protocol outlined in EPA 3051/7000B, unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with EPA 7000B Lead by FAA <paint>. The results are usually expressed in mg/Kg and percentage (%). Test results are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more detail.

At NVL Labs all analyses are performed under strict guidelines of the Quality Assurance Program. This report is considered highly confidential and will not be released without your approval. Samples are archived after two weeks from the analysis date. Please feel free to contact us at 206-547-0100, in case you have any questions or concerns.

Sincerely,

Shalini Patel, Manager Metals Lab

Enc.: Sample results



Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227) 4708 Aurora Avenue North | Seattle, WA 98103-6516

# **Analysis Report**

Total Lead (Pb)



## Batch #: 2313675.00

Matrix: Paint Method: EPA 3051/7000B Client Project #: 41286.038 Date Received: 8/25/2023 Samples Received: 3 Samples Analyzed: 3

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent	
23083230	41286.038-Pb01	0.1720	58	< 58	< 0.0058	
23083231	41286.038-Pb02	0.2064	48	< 48	<0.0048	
23083232	41286.038-Pb03	0.0382	130	< 130	<0.013	

Comments: Small sample size (<0.05g) for 41286.038-Pb03.

Sampled by: Client Analyzed by: Yasuyuki Hida	Date Analvzed: 08/28/2023	Jun.			
Reviewed by: Shalini Patel	Date Issued: 08/29/2023	Shalini Patel, Manager Metals Lab			
mg/ Kg =Milligrams per kilogram		RL = Reporting Limit			
Percent = Milligrams per kilogram	10000	<pre>'&lt;' = Below the reporting Limit</pre>			
Note : Method QC results are acceptable unless stated otherwise. Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.					
Bench Run No: 2023-0828-02					

# LEAD LABORATORY SERVICES



Company PBS Environmental - Seattle Address 214 E Galer St. Suite. 300 Seattle, WA 98102 Project Manager Mr. Ryan Hunter Phone (206) 233-9639 Cell (484) 269-2138

NVL Batch Number 2313675.00							
lo							

Project Name/Number: 41286.038

Project Location: Tacoma Public Library - Main Branch Renovation

Subcategory Flame AA (FAA)

Item Code FAA-02 EPA 7000B Lead by FAA <paint>

# Total Number of Samples 3

### Rush Samples \_\_\_\_\_

_	Lab ID	Sample ID	Description	A/R
1	23083230	41286.038-Pb01		Α
2	23083231	41286.038-Pb02		Α
3	23083232	41286.038-Pb03		Α

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Client				
Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	8/25/23	1605
Analyzed by	Yasuyuki Hida		NVL	8/28/23	
Results Called by					
Faxed Emailed					
Special					
Instructions:					

Date: 8/25/2023 Time: 4:19 PM Entered By: Kelly AuVu



# LABORATORY ( 2313675

Project: <u>Tacoma Public L</u>	ibrary – Main Branch Renovation	Project #: 41286.038 Page 1 of 1		
Analysis requested:	FAA - Lead	Date: 8/25/23		
Relinq'd by/Signature:	Vickeber	Date/Time: <u>8/25/23</u>		
Received by/Signature:	Kunten e nu	Date/Time: 8/25/23 1600		
	Email ALL INVOICES to: seattleap@pt	osusa.com		
E-mail results to: Willem Mager Gregg Middaugh Mark Hiley Tim Ogden Ryan Hunter Janet Murphy	<ul> <li>Toan Nguyen</li> <li>Peter Stensland</li> <li>Claire Tsai</li> <li>Holly Tuttle</li> <li>Ferman Fletcher</li> <li>Cameron Budnick</li> </ul>	<ul> <li>Mae Reilly</li> <li>Nick San</li> <li>Kameron DeMonnin</li> </ul>		
TURN AROUND TIME: 1 Hour 2 Hours 4 Hours	☐ 24 Hours ⊠ 48 Hours	3-5 Days		

SAMPLE DATA FORM					
Sample #	Material	Location	Lab		
41286.038- Pb01	Off-white paint on gypsum wallboard	Main building level 2 NW	NVL		
-Pb02	Gray paint on gypsum wallboard	Carnegie building level 1 SW cascade room A			
-Pb03	Lime green paint on gypsum wallboard	Main building level 1 SE offices			
		-			
			-		

September 13, 2023

Ryan Hunter **PBS Environmental - Seattle** 214 E Galer St. Suite. 300 Seattle, WA 98102



# NVL Batch # 2314600.00

### RE: Total Metal Analysis Method: EPA 7000B Lead by FAA <paint> Item Code: FAA-02

Client Project: 41286.038 Location: Tacoma Public Library - Main Branch Renovation

Dear Mr. Hunter,

NVL Labs received 5 sample(s) for the said project on 9/13/2023. Preparation of these samples was conducted following protocol outlined in EPA 3051/7000B, unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with EPA 7000B Lead by FAA <paint>. The results are usually expressed in mg/Kg and percentage (%). Test results are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more detail.

At NVL Labs all analyses are performed under strict guidelines of the Quality Assurance Program. This report is considered highly confidential and will not be released without your approval. Samples are archived after two weeks from the analysis date. Please feel free to contact us at 206-547-0100, in case you have any questions or concerns.

Sincerely,

Shalini Patel, Manager Metals Lab

Enc.: Sample results



Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227) 4708 Aurora Avenue North | Seattle, WA 98103-6516

# **Analysis Report**

Total Lead (Pb)



# Batch #: 2314600.00

Matrix: Paint Method: EPA 3051/7000B Client Project #: 41286.038 Date Received: 9/13/2023 Samples Received: 5 Samples Analyzed: 5

Client: PBS Environmental - Seattle Address: 214 E Galer St. Suite. 300 Seattle, WA 98102

### Attention: Mr. Ryan Hunter

Project Location: Tacoma Public Library - Main Branch Renovation

Lab ID	Client Sample #	Sample Weight (g)	RL in mg/Kg	Results in mg/Kg	Results in percent
23088857	41286.038-Pb04	0.1979	51	< 51	<0.0051
23088858	41286.038-Pb05	0.1839	54	< 54	<0.0054
23088859	41286.038-Pb06	0.1752	57	< 57	<0.0057
23088860	41286.038-Pb07	0.0419	120	< 120	<0.012
23088861	41286.038-Pb08	0.1948	51	< 51	<0.0051

### Comments: Small sample size (<0.05g) for 41286.038-Pb07

Sampled by: Client		4				
Analyzed by: Yasuyuki Hida	Date Analyzed: 09/13/2023	Olu-				
Reviewed by: Shalini Patel	Date Issued: 09/13/2023	Shalini Patel, Manager Metals Lab				
mg/ Kg =Milligrams per kilogram		RL = Reporting Limit				
Percent = Milligrams per kilogram	/ 10000	<pre>'&lt;' = Below the reporting Limit</pre>				
Note : Method QC results are acceptable unless stated otherwise. Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.						
Bench Run No: 2023-0913-02						

# LEAD LABORATORY SERVICES



Company	PBS Environmental - Seattle		
Address	214 E Galer St. Suite. 300		
	Seattle, WA 98102		
Project Manager	Mr. Ryan Hunter		
Phone	(206) 233-9639		
Cell	(484) 269-2138		

NVL Batch Number 2314600.00								
TAT	1 Day			AH No				
Rush	TAT							
Due D	ate	9/14/2023	3 Time	8:30 AM				
Email ryan.hunter@pbsusa.com								
Fax	(866)	727-0140						

Project Name/Number: 41286.038

Project Location: Tacoma Public Library - Main Branch Renovation

Subcategory Flame AA (FAA) Item Code FAA-02

EPA 7000B Lead by FAA <paint>

### Total Number of Samples 5

# Rush Samples \_\_\_\_\_

_	Lab ID	Sample ID	Description	A/R
1	23088857	41286.038-Pb04		Α
2	23088858	41286.038-Pb05		Α
3	23088859	41286.038-Pb06		Α
4	23088860	41286.038-Pb07		Α
5	23088861	41286.038-Pb08		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Drop Box				
Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Kelly AuVu		NVL	9/13/23	830
Analyzed by	Yasuyuki Hida		NVL	9/13/23	
Results Called by					
Faxed Emailed					
Special					
Instructions:					

Date: 9/13/2023 Time: 8:48 AM Entered By: Kelly AuVu



# LABORATORY CI 2314600

Project: <u>Tacoma Public Library – Main Branch Renovation</u>				Project #: <u>41286.038</u> Page 1 of 1		
Analysis requested:	A – Total Lead Pai	Date:	Date: 09/12/2023			
Relinq'd by/Signature:	Ryan Hunter / 7	2n Ht	Date/T	ime: <u>09/12/2023</u>		
Received by/Signature:	Kemptel	i.e. nur	Date/T	ime: 9/13/23 830		
	Email ALL	INVOICES to: seattleap@	pbsusa.com	KO		
E-mail results to:						
Willem Mager		Allison Welch		Cameron Budnick		
Gregg Middaugh		Toan Nguyen		Mae Reilly		
Mark Hiley		Peter Stensland		Nick San		
Tim Ogden		Claire Tsai		Kameron DeMonnin		
Ryan Hunter		Holly Tuttle				
Prudy Stoudt-McRae		Mike Smith				
Janet Murphy		Ferman Fletcher				
TURN AROUND TIME:						
🔲 1 Hour	$\boxtimes$	24 Hours		3-5 Days		
2 Hours		48 Hours		Other		
4 Hours						

SAMPLE DATA FORM				
Sample #	Material	Location	Lab	
41286.038-Pb04	Off-white / GWB / Wall	Main Building – Level 1 at Main Desk	NVL	
41286.038-Pb05	White / GWB / Wall	Carnegie Building – Level 2 Corridor	r	
41286.038-Pb06	Gray / Metal / Frame	Main Building – Level 2 North Storage		
41286.038-Pb07	Red / Metal / Frame	Main Building – West Elevation		
41286.038-Pb08	Gray / EIFS / Wall	Main Building – West Elevation	-	
			-	

214 EAST GALER STREET, SUITE 300, SEATTLE, WA 98102 • 206.233.9639 MAIN • 866.727.0140 FAX • PBSUSA.COM

# **APPENDIX C**

Certifications

# THIS IS TO CERTIFY THAT

# **NICHOLAS SAN**

# HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE for

# **ONLINE AHERA ASBESTOS INSPECTOR REFRESHER**

In accordance with TSCA Title II, Part 763, Subpart E, Appendix C of 40 CFR

Course Date:	10/13/2022	

ALIFCA LACATION	٠
Julise Lucation	

Online

Certificate:

IRO-22-8856B

For verification of the authenticity of this certificate contact: PBS Engineering and Environmental Inc.

4412 S Corbett Avenue

Portland, OR 97239



CCB #SRA0615 4-Hr Training

4-Hour Online AHERA Inspector Refresher Training; AHERA is the Asbestos Hazard Emergency Response Act enacting Title II of Toxic Substance Control Act (TSCA)

**Expiration Date:** 10/13/2023

ander fieldy

Andy Fridley, Instructor

# THIS IS TO CERTIFY THAT

# **RYAN HUNTER**

# HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE for ASBESTOS INSPECTOR REFRESHER

In accordance with TSCA Title II, Part 763, Subpart E, Appendix C of 40 CFR

Course	Date:	

02/13/2023

-	
ourse	Location.
2001.50	

Online

Certificate:

IRO-23-7254B

For verification of the authenticity of this certificate contact: PBS Engineering and Environmental Inc.

4412 S Corbett Avenue

Portland, OR 97239



CCB #SRA0615 4-Hr Training

4-Hour Online AHERA Inspector Refresher Training; AHERA is the Asbestos Hazard Emergency Response Act enacting Title II of Toxic Substance Control Act (TSCA)

Expiration Date: 02/13/2024

ander Fridly

Andy Fridley, Instructor

### PART 1 - GENERAL

- 1.1 SUMMARY
  - A. Section Includes:
    - 1. Description of Work
    - 2. Payment Requirements and Commissioning Schedule of Values
    - 3. Commissioning Coordination and Meetings
    - 4. Scheduling Commissioning Activities
    - 5. Submittals
    - 6. Duties of Commissioning Authority
    - 7. Duties of Contractor
    - 8. Duties of Contractor's Commissioning Coordinator
    - 9. Back-Charging Provisions
    - 10.Documentation Requirements
    - 11.Start-up Requirements
    - 12.Installation Verification Requirements
    - **13.**Functional Testing Requirements
    - 14. Commissioning Issue Documentation and Correction
    - 15.Performance Period
    - 16. Project Closeout
    - 17. Seasonal Testing
    - 18.Near Warranty End Review
  - B. Related Sections:
    - 1. Coordinate this section with the requirements of LEED EA Prerequisite Fundamental Commissioning and Verification.
    - 2. General Requirements to include the following sections, exact titles may vary.

Sustainable Building Requirements Indoor Air Quality Management Project Management and Coordination Submittals Closeout Procedures Operation and maintenance Data Demonstration and training

3. The following sections specify the commissioning activities for this project:

20 08 00 Commissioning of Mechanical26 08 01 Commissioning of Electrical Systems

3. All sections related to the following commissioned systems may contain start-up, testing and/or commissioning related activities:

**DIVISION 20 - MECHANICAL** 

**DIVISION 22 – PLUMBING** 

**DIVISION 23 – HVAC** 

### DIVISION 25 – INTEGRATED AUTOMATION FACILITY CONTROLS

DIVISION 26 – ELECTRICAL SYSTEMS

### 1.2 DESCRIPTION OF WORK

- A. Work includes the completion of formal commissioning procedures on selected equipment and systems as outlined in the paragraph Related Sections above. Commissioning is defined as the process of verifying and documenting that the installation and performance of selected building systems meet the specified design criteria and therefore satisfies the design intent and the Owner's operational needs. The Contractor shall be responsible for participation in the commissioning process as outlined herein, and in subsequent sectional references and attachments throughout the Contractor under the base contract. Enhanced Commissioning procedures as required by LEED will be designed and conducted under the direction of a Commissioning Authority (CxA) hired by the Owner.
- B. This section contains the general requirements for commissioning and a description of the commissioning process to be applied across all commissioned systems.
- 1.3 PAYMENT
  - A. Equipment and systems shall not be accepted by the Owner, and final payment shall not be made by the Owner, until commissioning activities identified in the specifications are complete, commissioning issues are resolved to the Owner's satisfaction and the performance period standards have been met.
  - B. Payment is subject to satisfying the Washington State Energy Code, Commercial Provision Section 408.1.4 which requires that commissioning be completed "Prior to the final mechanical, plumbing and electrical inspections or obtaining a certificate of occupancy".
  - C. Payment is subject to the conditions of the Actual Damages clause of the General Conditions.
- 1.4 COMMISSIONING COORDINATION AND MEETINGS
  - A. A representative for the Contractor, each commissioned system Contractor and the Contractor's Commissioning Coordinator (CCC) shall attend scheduled commissioning meetings as required.
- 1.5 SCHEDULE
  - A. The Contractor is responsible for coordination and scheduling of commissioning activities into the master schedule. The schedule shall contain the following activities and detail as a minimum.
    - 1. Contractor review and comment on preliminary commissioning plan documents
    - 2. Start-up Plan Development
    - 3. Start-up Activities by Equipment and Systems
    - 4. Installation Verification Activities by Equipment and Systems
    - 5. Functional Testing Activities by Equipment and Systems
    - 6. Training
    - 7. O&M
    - 8. Seasonal Testing

- B. The CCC shall develop and maintain a 2-week look-ahead schedule of commissioning activities including, but not limited to: meetings, start-up, installation verification, Functional Performance Testing (FPT) and FPT demonstration. The schedule shall be updated and distributed weekly, or if any currently scheduled activities in the 2-week period change.
- C. The Owner and the CxA will allocate their time based on the 2-week look-ahead schedule. If the Owner or CxA is not available for the scheduled activity then the Contractor may proceed as scheduled. If a scheduled activity does not take place due to lack of Contractor participation or inaccurate scheduling, the Contractor is subject to back-charging as outlined herein.
- 1.6 SUBMITTALS
  - A. Commissioning Documentation: Provide one copy of submittals in addition to those quantities specified elsewhere. Include the manufacturer's recommended installation and start-up procedures with associated checklists for each unique piece of equipment under a separate tab titled "Installation/Start-up". These procedures and forms shall be for the specific piece of equipment to be provided.
  - B. The Contractor shall provide the CxA with copies of approved submittals, manufacturer's recommended installation/start-up documents, proposed testing formats, training plans, as-built documentation, O&M Manuals and other commissioning related materials as requested by the CxA. The CxA will review and approve this material for commissioning related activities.
  - C. The CCC is responsible for managing the submittal process with the CxA. A tracking document for selected submittals is included in the schedules at the end of the individual divisional commissioning specifications for systems to be commissioned. These schedules outline activities that will require specific submittal information by the Contractor. Assignment of Contractors responsible for commissioned systems and due dates will be determined at the initial commissioning coordination meeting.
  - D. O&M manuals for each piece of commissioned equipment are to be submitted with the proposed installation, testing and start-up documents.
  - E. The Contractor is responsible for providing the CxA with copies of the following information for inclusion in the Systems Manual. The CxA will review this material for compliance with Project Documents and will note and report issues for resolution by the responsible party. The CxA will compile the final Systems Manual based on the submitted documentation.
    - 1. As-built documents
    - 2. Description of systems, including capabilities and limitations
    - 3. Operating procedures for all normal, abnormal, and emergency modes of operation
    - 4. Sequence of operation as actually implemented, with control systems data including all set points, calibration data, etc. This includes but is not limited to the building automation system, packaged controls, programmable logic controllers and lighting controls.
    - 5. Location of all control sensors and test ports.
    - 6. Seasonal start-up and shutdown procedures.
    - Control schematics and computer graphics for all control systems including those noted in item 4.
    - 8. Complete terminal interface procedures and capabilities for all control systems including those noted in item 4.
    - 9. A list of recommended operational recordkeeping procedures including sample forms, trend logs, or others, and a rationale for each
    - 10. Maintenance procedures for all building systems.
## 1.7 COMMISSIONING AUTHORITY

- A. The information provided herein regarding the Commissioning Authority's (CxA) responsibilities is provided to the Contractor for information only and is not a part of the work scope. The CxA is hired under direct contract with the Owner.
- B. The CxA for this project shall be Keithly Barber Associates (KBA), Inc. (206) 835-8254, www.keithlybarber.com. KBA is a Building Commissioning Certification Board (BCCB) Certified Commissioning Firm. KBA has on staff Building Commissioning Association (BCxA members and Building Commissioning Certification Board (BCCB) Certified Commissioning Providers (CCP).
- C. Responsibilities: The CxA responsibilities include, but are not limited to the following:
  - 1. Approve selection of the CCC.
  - 2. Participate in the initial on-site commissioning coordination meeting and subsequent commissioning meetings.
  - 3. Conduct site observations and provide site observation reports.
  - 4. Review and approve the start-up plan and commissioning schedule as developed by the CCC and the Contractor.
  - 5. Develop the commissioning plan including start-up plan, installation verification checklists and functional test documents
  - 6. Review and approve various Contractor completed documents including CCLs, start-up documents and data sheets as they are completed.
  - 7. Witness, spot check or otherwise verify successful completion of selected functional testing by Contractor.
  - 8. Review the TAB report. Witness or spot check a sample of the systems to verify conformance to design and the report.
  - 9. Prepare and submit final commissioning report with recommendation for system acceptance to the Owner. Report is developed with material provided by CCC and Contractor.

## 1.8 CONTRACTOR

- A. Contractor Responsibilities
  - 1. Support the commissioning process including integrating related commissioning activities into the construction process and schedule.
  - 2. Assure the participation and cooperation of subcontractors as required to complete the commissioning process as outlined herein and the individual divisional commissioning specifications.
  - 3. Assign a Commissioning Coordinator dedicated to the project.
  - 4. Provide all submittal material as requested by the CxA and as required by the contract documents.
  - 5. Attend commissioning meetings as scheduled.
  - 6. Provide access to commissioned systems including ladders, lifts, scaffolding, access panels and other equipment as required.
  - 7. Install and start-up equipment per the contract documents and start-up plan.
  - 8. Conduct functional testing per the contract documents and commissioning plan
  - 9. Provide required test instrumentation and equipment as needed to conduct functional testing per the commissioning plan.
  - 10.Resolve issues as noted on the commissioning issues list and communicate resolution to the CxA.
  - 11.Support seasonal testing as required.
  - 12. Support the near-warranty-end review and correct any noted issues prior to warranty end.

## 1.9 CONTRACTOR'S COMMISSIONING COORDINATOR

- A. Contractor's Commissioning Coordinator (CCC) Qualifications
  - 1. The CCC shall be a regular employee of the Contractor assigned to the project. The CCC shall be responsible for coordination of Contractors responsible for commissioned system regardless of the Contractors they represent.
  - 2. The CCC responsibilities shall not be shared by multiple parties, one individual shall be designated.
  - 3. The individual designated as the CCC shall be available on site from the beginning of construction to final acceptance.
  - 4. The individual designated as the CCC may have other construction or project related assignments, but only to the extent that they will be able to fulfil the CCC responsibilities outlined herein.
  - 5. The individual designated as the CCC shall be identified by the Contractor during the submittal process.
  - 6. Submit the name, company, contact information (address, phone, cell phone, FAX and email) and other project duties for the proposed CCC.
- B. Contractor's Commissioning Coordinator Responsibilities
  - 1. Overall management and coordination of the commissioning work performed by the Contractors responsible for commissioned systems including responsibilities identified as the CCC's responsibility in each section on commissioned systems.
  - 2. Coordinate Owner and CxA participation in scheduled commissioning activities. Notify Owner and CxA a minimum of 5 working days in advance of commissioning activities.
  - 3. Collect, review and submit commissioning material and documentation to the CxA for approval prior to proceeding with commissioning activities including, but not limited to, the following:
    - a. Review and comment on preliminary functional tests provided by CxA. Contractors responsible for the systems to be commissioned shall also review this information.
    - b. Develop, manage and update commissioning schedule with commissioning activities
    - c. Proposed Manufacturer's installation and start-up documents
    - d. Proposed cleaning, flushing, testing, disinfection forms
    - e. Proposed Static tests and calibration forms
    - f. Start-up plan
    - g. Proposed functional performance test forms
    - h. Completed Manufacturer's installation and start-up documents
    - i. Completed cleaning, flushing, pressure testing, disinfection forms
    - j. Completed static tests and calibration forms
    - k. Completed Contractor Checklists
    - I. Completed functional performance test forms
    - m. TAB agenda
    - n. TAB preliminary and final report
    - o. Signed off issues lists
    - p. Proposed O&M Manuals
    - q. Training plans and agenda
    - r. Final O&M Manuals
  - 4. Develop, manage and update commissioning schedule. Integrate commissioning activities into master schedule. Provide a 2-week look-ahead schedule of commissioning activities, updated weekly or as scheduled commissioning activities change during 2-week period.

- 5. Distribute issues lists to Contractors responsible for the commissioned systems.
- 6. Assemble, manage and update the start-up plan.
- 7. Attend regularly scheduled construction and Owner's meetings and review commissioning activities with Contractors responsible for the commissioned systems and design team. Include commissioning activity items in construction meeting minutes.
- 8. Participate in and lead commissioning meetings as necessary to coordinate contractor activities in the commissioning process. Meetings are generally to be scheduled once every two weeks during initial construction of commissioned systems, and weekly during start-up and functional test phases. The CxA shall lead commissioning meetings when on site and the CCC shall lead all other meetings.
- 9. Provide material for, participate in the development of, and review the final report.
- 10. Coordinate and participate in seasonal testing.

## 1.10 BACK-CHARGING

- A. The Contractor and CCC are responsible to schedule and coordinate installation, start-up and testing activities with the CxA as specified herein and in each section on commissioned systems. Scheduled installation, start-up or testing activities that are not executed because of lack of preparation or coordination by the Contractor that result in unnecessary trips by the CxA are subject to back-charges to the Contractor.
- B. Functional testing shall be performed on the systems that are fully complete as reported by the Contractor. Systems that are reprogrammed or have had a software upload that can be shown to invalidate completed functional testing shall be retested to demonstrate proper operation. Tests reconducted by the Contractor shall be performed at no additional cost to the contract. Tests reconducted by the CxA shall result in a back-charge to the Contractor.
- C. The Contractor shall reimburse the Owner for costs associated with any additional efforts required to witness installation, start-ups, testing activities or for excessive back-checking as indicated above. These costs shall include salary, travel costs and per diem lodging costs (where applicable) for the Commissioning Authority. Rates to be used will be per the contract between the Owner and Commissioning Authority.

## PART 2 – PRODUCTS

## 2.1 DOCUMENTATION

- A. Schedule-A (located at the end of each section on commissioned systems, XX-08-00) contains sample versions of the Contractor Checklists (CCL) to be used for the systems to be commissioned.
- B. Schedule-B (located at the end of each section on commissioned systems, XX-08-00) contains a Functional Performance Test Summary Table that outlines each functional test to be conducted for the systems to be commissioned. Part 4 of each section on commissioned systems contain sample versions of functional performance test procedures and data sheets. These do not represent all functional tests that will be required and are intended only to demonstrate the rigor of functional testing required.

## 2.2 INSTALLATION VERIFICATION

- A. The CxA shall conduct an independent Installation Verification using checklists based on the Contractor Checklists provided in Schedule A, located at the end of each section on commissioned systems.
- 2.3 STARTUP FORMS

- A. Any installation and start-up checklists that are provided by the manufacturer shall be used in the equipment start-up process. Non-manufacturer developed forms must be approved by the CxA prior to use. Start-up forms must be submitted to the CCC for inclusion in the Start-up plan at least one month prior to system start-up to allow for review and approval by the CxA. Documentation for static testing, cleaning, flushing, calibration and other activities required by project documents are considered start-up forms. Schedule A (located at the end of each section on commissioned systems) outlines the required documents to be submitted by the Contractor.
- 2.4 FUNCTIONAL PERFORMANCE TEST FORMS
  - A. The functional performance test procedures and data sheets shall be developed by the CxA as outlined in Schedule B (located at the end of each section on commissioned systems), with input from the CCC and Contractor as required.
  - B. The Contractor has specific responsibilities for developing, performing and documenting functional test procedures as directed by the CxA. See Schedule B for minimum testing and documentation requirements.
  - C. In addition to the testing outlined in Schedule B, wherever the Project Documents require testing, test reports, checklists, verifying operation, demonstrating proper operation or other similar language with respect to the systems to be commissioned, written testing procedures and documentation of tests will be required from the Contractor, whether specified or not in the commissioning sections.
  - D. A tracking document for these submittals is included in Schedule B which outlines which of these activities will require submittal information by the Contractor. Contractors responsible for the systems to be commissioned and due dates will be determined at the initial commissioning coordination meeting.

## 2.5 COMMISSIONING ISSUES LIST

A. The CxA shall maintain the Commissioning Issues List. At any time an issue is discovered where the installation or performance of the commissioned system does not meet contract document requirements, an individual issue shall be generated. As issues are resolved and verified by additional inspections or tests, the issues list shall be updated. The issues list shall be a running history of the status of the issue.

### 2.6 TEST EQUIPMENT

- A. The Contractor shall provide all test equipment as required to prove performance during static and functional tests.
- B. The test equipment shall be provided in sufficient quantities to execute functional testing in an expedient fashion.
- C. The test equipment shall be of industrial quality and suitable for testing and calibration with accuracy within the tolerances necessary to demonstrate system performance.
- D. Equipment shall be certified to an accuracy of 10% of the smallest tolerance to be measured. For example, if a temperature gage is required to be +2 degrees F, the calibration device must have an accuracy of +0.2 degrees F.
- E. The test equipment shall have calibration certification per equipment manufacturer's interval level or within one year if not specified.

F. Where sensors for specific gases are used (e.g. carbon monoxide, nitrogen dioxide, refrigerant leak detectors, etc.) the Contractor shall provide appropriate test gases in order to validate calibration of sensors. Test gases shall be provided so as to validate sensor output for 0, 50 and 100 percent of the sensor range.

## PART 3 – EXECUTION

## 3.1 DOCUMENTATION

- A. Checklists, start-up documentation, test forms and other commissioning related documentation required by contract shall be neatly and legibly completed and provided to the CxA via the CCC in a clear and easily readable condition.
- B. Required checklists, start-up documentation, test forms and other commissioning related documentation shall be provided to the CxA via the CCC in a timely fashion and according to the commissioning and construction schedule.
- C. In every case where the Contractor is unable to comply with an item as listed on the checklist or form, the Contractor shall immediately notify the CxA in writing as to the reasons for non-compliance.

## 3.2 ACCESS TO EQUIPMENT AND SYSTEMS

- A. The Contractor shall provide access to all equipment and systems to be commissioned both during construction and after occupancy as necessary. The Contractor shall coordinate with other trades to assure that access to commissioned equipment is available to the CxA and other trades at the proper times and with sufficient duration.
- B. The Contractor shall provide all ladders, lifts, scaffolding, access doors, removal/installation of ceiling tiles and any other materials or activities as necessary to allow the CxA to easily access equipment and systems.
- C. During the commissioning process, the Contractor shall coordinate the installation of ceiling tiles and other finishes to allow all trades and the CxA to perform their work without having to remove or reinstall ceiling tiles or other finished work. Note that above-ceiling access is required to perform Installation Verification and Functional Performance Testing of systems. Ceiling tiles typically must be in place during Testing and Balancing activities. Since Testing and Balancing may occur between Installation Verification and Functional Performance Testing, some ceiling tiles may require multiple removal/reinstallation cycles.
- D. In the event that system commissioning is not fully completed after occupancy, the Contractor shall be responsible for coordinating with the owner for access to the equipment or system for testing, backchecking and other commissioning activities. This requirement shall include providing access to equipment as indicated above.

## 3.3 COMMISSIONING MEETINGS

A. Commissioning status meetings shall be scheduled to occur during the construction and closeout phase to monitor progress and to help facilitate the commissioning process. Contractor representatives for commissioned systems shall be required to attend these meetings. Meetings will generally be scheduled to occur with scheduled construction or management meetings. The CCC shall schedule, coordinate and lead the meetings including providing meeting minutes. These meetings can coincide with, or be a subset of, the normal subcontractor meetings. The CxA shall attend and lead selected meetings at their discretion.

- B. Commissioning shall be included in the general construction and Owner's meetings. The CCC will attend these meetings and discuss commissioning related topics there. Commissioning information and issues shall be documented in the meeting minutes.
- C. After functional testing and during the issue correction period, the Contractor shall hold and document weekly meetings (as a minimum) to coordinate and review outstanding commissioning issues. These meetings shall be coordinated and led by the general contractor's CCC and attended by all subcontractors responsible for commissioned systems. The meetings shall be required until all issues are resolved. The CxA shall attend and lead selected meetings at their discretion.
- D. The contractor shall make available the option to host the commissioning meetings via videoconferencing, in whole or in part, to include internet connection, video monitor and audio services at the on-site meeting room.

## 3.4 SITE OBSERVATIONS

A. The CxA may perform periodic site visits during construction to monitor commissioning activities. The purpose of these observations will be to evaluate compliance to contractual obligations such as cleanliness, capping ductwork, access to equipment, maintainability and so forth to identify concerns before they are repeated throughout the project. Any issues identified will be noted on a Site Observation Report. The Contractor shall review these reports and take action to resolve issues as needed and deemed appropriate in consultation with the Owner, CxA, and Design Team.

## 3.5 CONTROLS INTEGRATION MEETING – BUILDING AUTOMATION AND LIGHTING

- A. The controls integration meetings (CIM) shall be conducted after the building automation and lighting controls submittals are complete and the CxA has reviewed the submittals. The meetings are to be conducted prior to finalizing the functional test procedures and shall be attended by the CxA, the BAS control contractor, the VRF control contractor, the lighting controls contractor, the mechanical/electrical engineers and a representative of the Owner's maintenance group at a minimum. The CIM shall include, but not be limited to, the following topics:
  - 1. Sequence of Operations
  - 2. Alarm Points List
  - 3. Trend Points List
  - 4. Displayed/Adjustable Point List
  - 5. Graphical Interface
  - 6. Integration with packaged equipment
  - 7. Lighting control interface
  - 8. Point-to-Point Checkout and Commissioning of Existing Equipment 9. Method of Conducting Cx Functional Testing

## 3.6 PRE-STARTUP ACTIVITIES

- A. The CxA shall develop a preliminary commissioning plan with input from the Contractors via the CCC.
- B. As soon as possible after the bid award, approval of submittals and development of the preliminary commissioning plan, the CxA shall conduct an initial commissioning coordination meeting with the CxA, CCC, Contractors, Owner's Representative and the A/E Team. The CxA will explain the commissioning process in detail, and identify specific commissioning related responsibilities. The preliminary commissioning plan shall be provided to the Contractors at this time. The requirements for submittal material shall be reviewed along with a preliminary schedule of commissioning activities.

- C. The Contractor shall submit to the CxA via the CCC preliminary O&M manuals prior to developing the Start-up and Commissioning Plan by the CxA.
- D. The Contractor shall submit to the CCC the proposed start-up and Contractor required testing documentation for assembly into the Start-up and Commissioning Plan by the CxA.
- E. The CxA shall develop a Start-up Plan based on Contractor submittals and the start-up requirements of the contract documents. It details the procedures and forms for individual pieces of equipment and systems that have start-up and testing requirements. It shall be a three-ring binder indexed by system or equipment. The binder shall be populated with procedures and blank forms and used to file the completed forms as the procedures are completed by the Contractor. The Start-up Plan shall include, but is not limited to, the following:
  - 1. List of commissioning team members.
  - 2. Start-up document tracking forms.
  - 3. Master list of equipment/systems for installation and start-up.
  - 4. Start-up and static testing schedule.
  - 5. Manufacturer and Project Document required installation, start-up and testing procedures 6. Blank copies of start-up and testing forms for each type of equipment/system.
  - 7. Contractor checklists for each system.
- F. The CxA shall develop the final commissioning plan. The commissioning plan typically includes, but is not limited to, the following:
  - 1. Project overview.
  - 2. Commissioning Authority scope of work.
  - 3. Contractor's Commissioning Coordinator scope of work.
  - 4. Roles and responsibilities of commissioning participants.
  - 5. A schedule with sequential description of commissioning activities.
  - 6. A complete list and description of equipment and systems to be commissioned.
  - 7. The Start-up Plan
  - 8. Installation verification data forms for systems and equipment to be commissioned.
  - 9. Functional performance test criteria, test forms and data forms for systems and equipment designated to be functionally tested including trending needed for the performance period.
  - 10.System integration testing plan.
  - 11.Sample commissioning issues list.
  - 12. Project closeout activities
- G. The Contractor shall be responsible for the liability and safety of conducting tests. The CCC and Contractor shall review the Functional Performance Test (FPT) documents provided by the CxA prior to including them in the final commissioning plan. The Contractor is to review preliminary and final test procedures to verify that they:
  - 1. Will not pose a risk of injury to any personnel.
  - 2. Will not pose a risk of damage to equipment, structure or any physical element of the building.
  - 3. Will not negate any equipment or system warranties.
  - 4. Are executable with the personnel and equipment available to the Contractor.

## 3.7 EQUIPMENT INSTALLATION AND START-UP

A. Installation and Start-up activities include procedures outlined by the contract documents and the equipment manufacturer including cleaning, static testing, calibration and other related activities. The CxA shall provide the Contractor with a start-up plan based on Contractor submitted procedures and checklists.

B. The CxA may witness selected equipment start-up and testing performed during construction. The CCC shall keep the CxA informed of commissioning activities with regular status reports and updates to the commissioning plan, start-up plan and schedules

C. The Contractor shall perform equipment start-up per the approved start-up plan and start-up forms. The Contractor shall correct issues as they are discovered. The Contractor shall complete the installation and start-up forms as the work is complete and place the fully completed installation and start-up forms in the start-up binder.

- D. Upon completing the start-up activities for a given system, the associated Contractor Checklists (CCL) shall be completed by the Contractor and placed in the appropriate tab section of the start-up binder. The completed and signed CCL is to be provided with the equipment manufacturer's recommended start-up form for each piece of equipment or system. The completed CCL is the Contractor's certification that they have completed all required installation and start-up activities and the system is ready for the installation verification audit by the CxA and subsequent functional performance testing.
- E. The start-up binder shall be maintained by the Contractor's Commissioning Coordinator. The Contractor is responsible for maintaining the start-up book in good order and to turn the completed document over to the CxA at the conclusion of start-up. If the start-up binder is lost or stolen, it shall be the responsibility of the Contractor to recreate the binder and its contents, including re-conducting start-up activities if necessary.
- F. Upon completion of all start-up activities including the required documentation, the Contractor shall submit the start-up binder to the CxA via the CCC for review and approval.
- 3.8 INSTALLATION VERIFICATION (IV)
  - A. The IV process shall begin when signed off CCLs and start-up documents are received from the Contractor.
  - B. The CxA shall conduct an independent installation verification audit on selected systems to verify conformance with manufacturer's installation instructions and project documents. The CxA shall use the completed CCL from the contractor to verify installation. Discrepancies discovered will be reported on the Commissioning Issues List by the CxA. A copy of the issues list will be transmitted to the Contractor via the CCC with a copy to the Owner and Design Team.
  - C. The Contractor shall correct any issues discovered and note the action taken on the issues log and return it to the CxA via the CCC.
  - D. The CxA shall back-check and verify that the issues are resolved prior to proceeding with FPT.
- 3.9 FUNCTIONAL PERFORMANCE TESTS (FPT)
  - A. FPT includes the documented testing of system parameters, under actual or simulated operating conditions. Final performance testing of systems will begin only after the Contractor certifies that systems are 100% complete and ready for functional testing, by providing completed and signed-off copies of the start-up plan and providing completed Contractor Checklists.
  - B. Any testing procedures and forms which the Contractor is required to provide must be provided by the CCC to the CxA at least one month prior to start of installation of the equipment and as needed to complete the commissioning plan.
  - C. Functional performance testing of commissioned systems shall begin after all critical issues discovered during the start-up and installation verification process have been corrected. The CxA and

Contractor shall conduct functional performance tests on selected systems to verify functional performance criteria as outlined in Schedule - B (located at the end of the individual divisional commissioning specifications) and as required in the Project Documents and approved by the CxA in the Commissioning Plan. Discrepancies discovered will be reported on the Commissioning Issues List by the CxA. A copy of the issues list will be transmitted to the Contractor via the CCC.

- D. Functional tests that have excess failure rates or are aborted due to lack of Contractor participation or scheduling are subject to the back-charging provisions of the paragraph Back Charging.
- E. The Contractor shall make available to the CxA a method of interfacing with any commissioned control systems at the building site including but not limited to the building automation system, packaged control systems, programmable logic controllers and lighting control systems. This interface shall be made available regardless of whether or not a permanent local work station is specified elsewhere in the contract documents. The on-site interface shall be made available from the time of completion of start-up activities until trending is complete and all commissioned systems are accepted by the owner. The Contractor shall also make available to the CxA a method of remote access to the control system(s) beginning at the time of completion of start-up activities and extending for one year after system acceptance. Remote and local access shall include all software, licensing, software keys and anything else required to facilitate full access to the system(s). The local and remote interfaces shall include all contract required interfaces including, but not limited to, all graphics, trends and alarms. The CxA shall be given an account with full security access privileges to the system(s).
- 3.10 COMMISSIONING ISSUE DOCUMENTATION AND CORRECTION
  - A. The commissioning issues list is generated and maintained by the CxA to include a description of the issue, date of posting, the current status of issues, assignment to the responsible party and the date of final resolution as confirmed by the CxA. Items listed may include issues where design, products, execution or performance does not appear to satisfy the Contract Documents and the design intent. The resolution of issues identified on this list may or may not be the responsibility of the Contractor.
  - B. Once issues have been identified and assigned to a Contractor on the Commissioning Issues List, the Contractor shall be required to investigate and resolve these issues in a timely manner. After correcting issues noted on the Commissioning Issues List, the Contractor shall sign off on each issue and return the list to the CxA via the CCC for initiation of back-checking by the CxA.
  - C. In the event that an issue has been assigned to the wrong Contractor or resolution of the issue requires multiple trades, Contractor with the initial assignment shall take the lead in working with the CCC and CxA to reassign the issue or coordinating the multiple trades to resolve the issue.
  - D. The CxA shall back-check and verify that the commissioning issues are resolved and update the issues list. Excessive back-checking by the CxA due to issues reported as complete not actually being resolved are subject to the back-charging provisions of the paragraph Back Charging.
  - E. After functional testing and during the issue correction period, the Contractor shall hold weekly onsite meetings (as a minimum) to coordinate and review outstanding commissioning issues. These meetings shall be coordinated and led by the general contractor's CCC and attended by all subcontractors responsible for commissioned systems. The meetings shall be required until all issues are resolved.

## 3.11 PERFORMANCE PERIOD

A. Performance Period: The performance period is a set length of time designated to demonstrate proper facility operation prior to acceptance. The performance period commences after successful completion of all functional testing. Parameters evaluated for heating and ventilation systems typically include zone temperature stability, optimum start/stop, warm-up period and other related functions.

For lighting control the parameters include lighting levels, occupancy switching and daylight control. As part of this process the Contractor will be required to set up and provide trends of building automation system parameters per the direction of the CxA. The specific trending needed will be outlined in the commissioning plan, the Contractor should assume that all points in the building automation system will be trended. Lighting control parameters will be trended if system capabilities exist, otherwise the Contractor will provide stand-alone data loggers to demonstrate operation of systems.

- B. The CxA shall prepare a performance period test plan including measured variables and success criteria based on performance characteristics described in the Project Documents. The CxA will provide the Contractor with a list of trend log definitions or stand-alone data logger requirements based on the performance period test plan included in the Commissioning Plan.
- C. The Contractor will review the performance period test plan and set up the trend log definitions and stand-alone data loggers. Trend logs shall be set up for all inputs/outputs, both digital and analog, for all points in the system both physical and virtual. Trend interval shall be 5 minutes unless otherwise directed by the CxA. The minimum trend period shall be 14 days. Trend log point headings as displayed on system graphs and data tables shall be adequately descriptive for the point but no longer than 12 characters unless approved by the CxA. System default names are not acceptable. The heading titles shall contain no extraneous characters that are not needed to describe the point. The contractor shall provide the trends to the Commissioning Authority in electronic format, in MS Excel or a comma delimited file with related system parameters grouped together for easy comparison. If building automation system resident memory is limited or there are other issues with the trending requirements, the Contractor will work with the CxA to redefine the test plan.
- D. The performance period will commence within one week of the final functional tests and run for a minimum of 14 days. A similar performance period may be required for seasonal testing. If failures are encountered, the performance period shall be aborted. After corrections are made, the performance period shall be re-started at day one. Systems shall run per the final sequences of operation for 30 days without adjustments or corrections before the warranty period will commence.

## 3.12 SEASONAL TESTING

- A. Seasonal testing is required to demonstrate the system's ability to meet design conditions associated with seasonal extremes, typically peak heating and peak cooling conditions.
- B. Seasonal testing may also be required when ambient conditions will not support the operation of specific equipment.
- C. Seasonal testing is required to demonstrate the performance for a fully occupied building or portion of the building as well as for systems that are occupancy sensitive.
- D. The Contractor shall provide labor and material for seasonal testing and make corrections to any Contractor related issues discovered.

## 3.13 PROJECT CLOSEOUT

- A. Post construction Contractor responsibilities include providing O&M manuals, warranties, spares and training that meet the requirements of the project documents. The CxA will provide a commissioning report.
- B. O&M Manual

- The Contractor is responsible for providing the CxA with copies of the balancing reports, asbuilt drawings, O&M manuals relevant to the systems commissioned and the Contractor provided material required for the systems manual (if applicable). The CxA shall review this material for compliance with project documents and report issues for resolution by the responsible party.
- C. Warranties
  - 1. The Contractor is responsible for providing the CxA with copies of the equipment warranties for each commissioned system. The CxA shall review this material for compliance with project documents and report issues for resolution by the responsible party.
- D. Spares
  - 1. The Contractor is responsible for providing the CxA with copies of the spare parts transmittals. The CxA shall review this material for compliance with project documents and report issues for resolution by the responsible party.
- E. Training
  - 1. Training on related systems and equipment operation and maintenance shall only be scheduled to commence after functional testing is satisfactorily completed, O&M manuals have been delivered and approved, the systems manual (if applicable) is complete and systems are verified to be 100% complete and functional.
  - 2. Each Contractor is responsible to provide a topical outline of the subjects to be covered in the training session(s), the expected length of time for the training sessions, and a brief resume listing the qualifications of the proposed training presenters.
  - 3. The CCC is responsible for developing the training plan with input from the Contractor and directing any videotaping efforts. The training plan is to be submitted to the Owner, Design Team and CxA for approval prior to conducting training. The CCC is responsible for coordinating training with the Owner and CxA and to verify execution of the training plan.
  - 4. Training Plans: For all Owner instruction, the Contractor shall submit a system-specific training plan for review and approval by the Commissioning Authority and the Owner. The training plan shall contain the following as a minimum:
    - a) Attendee sign-off sheet.
    - b) Required training hours specified in the project documents.
    - c) Detailed list of subject to be covered and durations.
    - d) Qualifications of training provider.
    - e) Training schedule including duration of each training session.
- F. Upon completion of commissioning activities the CxA will prepare and submit to the owner the Final Commissioning Report detailing the commissioning plan and commissioning activities and recommending acceptance to the Owner. The CCC will support this effort by coordinating the Contractor provided documentation.

## 3.14 NEAR-WARRANTY-END REVIEW

A. Approximately two months prior to the end of warranty on commissioned systems, the Contractor shall participate in a review of the commissioned systems with the owner, design team and the CxA to

identify any operational and outstanding issues. For this review, the Contractor shall schedule the attendance of appropriate parties with project specific knowledge, including but not limited to the following:

General Contractor Mechanical Contractor Building Management System Contractor Variable Refrigerant Flow System Startup and Controls Contractor(s) Lighting Controls Contractor(s)

- B. The review shall consist of a meeting on site with the Contractor with follow up testing and verification by the Contractor.
- C. A list of issues will be developed by the owner and CxA. Once issues have been identified, the Contractor shall investigate, test and inspect systems as necessary to identify and resolve warranty issues in a timely manner.
- D. The Contractor shall ensure the cooperation of appropriate Contractors responsible for the commissioned systems in any follow-up meetings, testing, inspections and investigation regarding warranty issues and in resolving, prior to the end of the warranty, any warranty issues discovered.
- E. Issues identified in this review will remain warranty items until satisfactory completion, even if the warranty period expires during the review and correction period.

END OF SECTION 01 91 13

## PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS
  - A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 0 and 1 Specification Sections, apply to this Section.
- 1.2 WORK INCLUDED
  - A. Perform tests of the electrical system to ensure code compliance and proper system operation according to the intent of the contract documents. Retain the services of approved testing agency(s) to comply with the ground fault protection systems requirements of this section.
  - B. Applicable Codes, Standards & References for Tests:

All inspections and tests shall be in accordance with the following applicable codes and standards except as provided otherwise herein.

- 1. National Electrical Code NEC
- 2. National Electrical Manufacturer's Association NEMA
- 3. American Society for Testing and Materials ASTM
- 4. Institute of Electrical and Electronic Engineers IEEE
- 5. National Electrical Testing Association NETA
- 6. American National Standards Institute ANSI
- 7. State and Local Codes and Ordinances
- 8. Insulated Cable Engineers Associate ICEA
- 9. Association of Edison Illuminating Companies AEIC

## 1.3 CIRCUIT TESTS

- A. The Contractor shall perform routine insulation resistance, continuity and grounding tests for all distribution and utilization equipment prior to their connection and energization. A standard megger-type instrument shall be used to demonstrate that insulation values are acceptable, ground system is continuous, and the neutral system is isolated from the grounding system except at the systems' single ground point.
- B. System defects, indicated by the circuit tests, shall be corrected. Tests shall be repeated until satisfactory results are obtained.

### 1.4 GROUNDING TEST

- A. Measure the ohmic value of the Electrical Service Entrance "System Ground" with reference to "Earth Ground" using multiple terminal, fall of potential methods and suitable test instruments.
- B. Maximum resistance to ground shall be less than 10 ohms unless lower values are specified in the contract documents. Notify the Architect/Engineer if this resistance value is not obtained for the initially installed system; and then provide corrective measures required to

reduce ground resistance to less than 10 ohms.

### 1.5 MOTOR AND EQUIPMENT TESTS

- A. Verify proper rotation of all motors before placing into service.
- B. Measure and record electrical data for each motor installed under this contract. Data shall include these items:
  - 1. Motor description
  - 2. Controller description
  - 3. Motor nameplate amperes
  - 4. Actual measured motor running amperes
  - 5. Overload heater manufacturer and catalog numbers
  - 6. Overload heater ampere range
  - 7. Voltage (measured) and phase
- C. Motor controller overload heaters shall be sized to the actual motor nameplate full load current; do not oversize overload heaters.

## 1.6 PHASE BALANCE TESTS

- A. Verify the balance of the electrical system's phase currents. Reassign load connections if necessary, to obtain a balance is acceptable to the Engineer.
- 1.7 ARC FLASH AND PERSONNEL PROTECTIVE EQUIPMENT (NEC 110-16)
  - A. Contractor shall prepare an arc flash and Personnel Protective Equipment study. Contractor shall provide labeling of the electrical equipment within the facility. All labels shall have a permanent marked date of the label installation per National Electrical Code requirements.

## 1.8 SHORT CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDY

A. Contractor shall prepare a short circuit and protective device coordination study of the electrical equipment within the facility per National Electrical Code requirements.

## **PART 2 - PRODUCTS**

- 2.1 MATERIALS AND INSTRUMENTATION
  - A. Contractor and/or testing agency shall supply all apparatus and materials required for indicated tests.
  - B. Contractor shall include all costs associated with testing in bid proposal.

## 2.2 TEST REPORT(S)

- A. Furnish electronic PDF copy of test reports, as specified herein, for inclusion into the project operation and maintenance manuals. Each test report shall include the following items:
  - 1. Name, address and telephone number of the testing agency.

- 2. Name(s) of personnel conducting the tests
- 3. Type of test
- 4. Description of test procedure
- 5. List of items tested
- 6. List of actual test equipment including make, model(s), serial number(s) and calibration date(s) as applicable.
- 7. Test results
- 8. Conclusion and recommendations
- 9. Appendix, including appropriate test forms

## **PART 3 - EXECUTION**

- 3.1 TESTING PROCEDURE
  - A. Submit a copy of test procedure(s) to the Engineer prior to testing.
  - B. All tests shall be conducted according to applicable industry standards.

## 3.2 SCHEDULING

A. Notify Architect/Engineer and Owner at least five (5) working days prior to performance of any test.

## END OF SECTION

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and Divisions 0 and 1 Specification Sections, apply to work of this Section.

## 1.2 GENERAL CONDITIONS

- A. Bidding documents including Division 1 General Conditions, Supplementary General Conditions, Published Addenda and related work in other Divisions form an integral part of these Specifications and shall be binding on the Division 26 Contractor for all work performed under Division 26, Electrical.
- B. General requirements for materials and installation methods.

## 1.3 DEFINITIONS

- A. The term "provide" shall mean furnish, install and connect equipment and materials complete in operating condition.
- B. The term "approved" as used herein shall mean the written approval of the Engineer.
- C. The term "Contractor" as used herein shall mean the organization responsible for accomplishing all work within the contract documents. The plural term "contractors" as used herein shall include all of the trade organizations that comprise the project workforce.
- D. The term "drawings" as used herein shall mean all contract drawings for all divisions of work.
- E. NEC means National Electrical Code.
- F. The term "code" as used herein shall mean all applicable National, State and local codes.

## 1.4 SCOPE OF WORK

- A. The Electrical work consists of furnishing, installing, testing and placing in satisfactory operation all equipment, materials, devices and appurtenances, necessary to provide complete systems according to the intent of the Drawings and Specifications. In general, this includes all labor, materials, equipment, tools, etc. to complete the electrical work.
- B. Electrical requirements are not limited to electrical drawings and specifications. There is additional electrical work required to be included in the bid, indicated on the architectural, structural, landscape, civil, kitchen and mechanical drawings. Additional electrical work required in the bid is also located in the specifications. Contractor shall review all architectural, structural, landscape, civil, kitchen and mechanical, drawings and specifications for additional electrical requirements and information.

## 1.5 INTENT OF DRAWINGS

A. The Electrical drawings are intended to serve as working drawings for general layout. Equipment, receptacles, tele/data, switches, panels, lights, disconnects and raceways are partially diagrammatic and do not necessarily indicate actual routings or all appurtenances required for a complete installation.

- B. The drawings and specifications are complementary. What is called for in either is binding as if called for in both. In case of conflict within the drawings, specifications or between drawings and specifications the Architect/Engineer will select the method to be taken.
- C. Take all working dimensions, device heights, door swings and the like from architectural drawings and check them against those shown or scaled on the electrical drawings. In the event of conflict, report discrepancies to the Architect/Engineer for resolution before proceeding with the work.
- D. Minor changes in the locations of raceways, devices and the like, from those shown on the plans, shall be made without extra charge if so, directed by the Architect/ Engineer before installation.
- E. Motor horsepower and apparatus wattages indicated on the plans are estimated requirements of equipment furnished under other Divisions of this contract. Advise the Architect/Engineer in writing of any deviations in actual equipment supplied that affect the electrical installation.

## 1.6 MANUFACTURERS' RECOMMENDATIONS

A. Make all installations in strict accordance with manufacturers' published recommendations and details. All equipment and materials recommended by them shall be considered as part of this contract.

## 1.7 WORK RELATED TO OTHER DIVISIONS

## A. TEMPORARY CONSTRUCTION POWER AND LIGHTING

- 1. Contractor is responsible for all costs associated with removal of the temporary construction service meter.
- 2. Provide, maintain and remove, when no longer required, temporary electrical construction wiring from the construction service meter to and within the building for the number of lights and receptacles required. Wiring to construction sheds, outdoor construction machinery, and temporary exterior work areas shall be the responsibility of individual contractors.
- 3. Provide and maintain construction lighting with portable wiring and temporary energization of the permanent building wiring, complete with lamps. Suitable construction lighting shall be provided in each room where lighting is required for any of the contractors on the job. See NEC ARTICLE 305. Temporary wiring.
- 4. Contractor is responsible for re-lamping construction lighting after the initial lamping.
- 5. Provide adequate feeders, circuit breakers and duplex 15-ampere 120-volt receptacles at locations as required. Note: 120 volt construction receptacles shall provide Ground Fault circuit protection in accordance with applicable WISHA safety standards.
- 6. Portable power cords from the outlets specified herein shall be the responsibility of individual contractors using the cords.
- 7. Responsibilities outlined in the Paragraph Temporary Construction Power and Lighting are delineated herein to avoid conflicts between the various contractors. Assume all responsibility for safety, Electrical and Safety Code compliance, performance and adequacy of the construction power and lighting installation. The Architect and Engineer assumes no responsibility for the performance or safety and will not inspect nor design this temporary installation as it is not part of the completed structure.

## B. MECHANICAL CONTROL WIRING

1. See Division 23.

## C. EQUIPMENT FURNISHED BY OTHERS

- 1. All electrical equipment furnished for this project shall be coordinated with the drawings to insure correctness of Voltage, Phase and Ampacity. Equipment served by single circuit or feeder shall be provided with appropriate internal wiring including fusing of multiple circuits as required by code.
- 2. Contractors supplying equipment incompatible with the designed electrical service shall be responsible for arranging and providing necessary changes in their supply wiring to suit the equipment.
- 3. Verify dimensions of equipment to be furnished by others to insure correct clearances and connections.
- 4. Control Voltages shall not exceed 120 volts. Provide control transformers for higher line voltages. Control transformers shall be connected from phase to neutral.

## 1.8 SUPERVISION AND COORDINATION

- A. Coordinate work with local power, telephone, cable and data utilities to ensure compliance with their specific requirements. Before starting work, contact both power and telephone utilities and make arrangements for their services to this project.
- B. Contact Electrical Inspection and obtain a permit before starting work. Electrical plans have been submitted for plans review and will be available with payment for electrical permit.
- C. Maintain adequate supervision of Division 26 work and have a responsible person in charge at the site any time work is in progress or when necessary for coordination with other trades.
- D. Schedule work to best serve the interests of the Owner. Lay out work by referring to Civil, Landscape, Architectural, Structural, Mechanical and other Contractors to anticipate their movements. Cooperate with the other contractors on the job and coordinate work to avoid interference with them.
- E. Determine a satisfactory space allocation arrangement where electrical material is installed in proximity to work of other trades. No extra payments will be allowed to relocate work that interferes with that of other trades.

## 1.9 CODES AND REGULATIONS

- A. All work shall conform to current applicable National, State and local Codes; these shall be regarded as the minimum standard of quality for material and workmanship. Contractor shall provide all Labor and Material that may be required for compliance with Code Requirements or Code Interpretations, although not specifically detailed on the Drawings or in the Specifications. Contractor shall become familiar with all the following codes prior to bidding.
  - ASTM American Society for Testing and Materials
  - NBFU National Board of Fire Underwriters
  - NEC National Electrical Code
  - WAC Washinton State Administrative Code
  - NESC National Electrical Safety Code

- NEMA National Electric Manufacturers Association
- NFPA National Fire Protection Association
- UL Underriters Laboratories, Inc.
- ICEA Insulated Cable Engineers Associations
- CBM Certified Ballast Manufacturers
- ETL Electrical Testing Laboratories
- IFC International Fire Code
- IBC International Building Code
- B. Nothing in these Drawings and Specifications shall be construed as permitting work not conforming with governing codes.
- C. The Contractor shall not be relieved from complying with any requirements of these contract documents which may exceed, but not conflict with, requirements of the governing codes.
- D. Contractor shall include in bid all costs to have a Department of Labor & Industries approved firm to evaluate the installation safety, and compliance with code as required per WAC 296-40-100 for any equipment specified or furnished that is not UL labeled.
- E. For equipment furnished by others that is not UL labeled the contractor shall not connect the equipment to the electrical system until receiving written approval by the electrical authority having jurisdiction.

## 1.10 PERMITS & FEES

A. Obtain and pay all fees for licenses, permits and inspections required by laws, ordinances and rules governing work specified herein. Arrange for inspection of work and provide inspectors with all necessary assistance.

## 1.11 WORKMANSHIP

A. All work shall be done by competent craftsmen skilled in the specific work to be done. Equipment shall be installed in a neat and workmanlike manner following the best practice of the trade.

## 1.12 ITEMIZED COST BREAKDOWN

A. Furnish the Engineer with an itemized contract cost breakdown to allow evaluation of partial payment requests. The cost breakdown shall categorize major items of the contract such as: Job organization and setup, conduit system, primary switchgear, transformers, secondary panel gear, service and feeder wiring, branch circuit wiring, lighting fixtures, wiring devices, trim, fire alarm and special systems.

## 1.13 OPERATING INSTRUCTIONS

- A. Fully instruct the Owner's designated representatives in the operation and maintenance of all components of the electrical system upon completion of the work and after all tests and final inspection(s) by the Authority(s) Having Jurisdiction.
- B. All costs for contractor's instruction are to be included in the bid proposal. These costs are in addition to contractors' costs for commissioning.

- C. Instructors shall be contractor's superintendents or foremen knowledgeable in each system and equipment suppliers' representatives for special systems.
- D. Refer to Section 01 77 00 Closeout Procedures.

## 1.14 AS-BUILT RECORD DRAWINGS

- A. Continuously maintain a set of AS-Built Drawings to indicate all significant deviations from the original design and the actual placement of equipment and underground conduits. (Location of conduit stubouts shall be dimensioned from accepted reference lines). Changes shall be shown with red colored pencil while work is in progress. This "As-Built" set shall be clearly marked: "AS-BUILT RECORD DRAWINGS - Do Not Remove From Office."
- B. Quarterly "As-Built" review refer to 01 77 00 Closeout Procedures.
- C. "As-Built Record Drawings" and "Corrected to As-Built" prints shall be delivered to the Engineer for transmittal to the Owner.
- 1.15 ELECTRICAL EQUIPMENT OPERATION AND MAINTENANCE (O&M) MANUALS
  - A. Refer to Section 01 77 00 Closeout Procedures.

## 1.16 FINAL INSPECTION

- A. Refer to Section 01 77 00 Closeout Procedures.
- 1.17 FINAL ACCEPTANCE
  - A. Refer to Section 01 77 00 Closeout Procedures.

## 1.18 GUARANTEE

- A. The Division 26 Contractor shall provide written guarantee to repair or replace (without additional expense) any defective materials or workmanship which become evident within a period of one (1) year after final acceptance or for such longer period as elsewhere specified. All warranty work shall be to the satisfaction of the Owner.
- B. Any material guaranteed by a specific manufacturer for a period in excess of two (2) years shall be specifically noted on the Owner's written guarantee.
- C. The Division 26 Contractor will not be expected to perform normal maintenance, such as replacement of incandescent lamps, etc., 60 days beyond date of Beneficial Occupancy by Owner or Final Acceptance, whichever date is earlier.
- D. Refer to Section 017700 Closeout Procedures.

## PART 2 - PRODUCTS

- 2.1 GENERAL
  - A. All materials shall be new, free from defects, of the quality specified herein and on the drawings. Materials shall be designed to ensure satisfactory operation and rated life in the prevailing environmental conditions where they are being installed. They shall be listed by Underwriter's Laboratories or a recognized testing laboratory for use under these conditions.

Each type of material shall be of the same make and quality throughout the job. The Β. materials furnished shall be the latest standard design products of manufacturers regularly engaged in their production.

#### 2.2 **TECHNICAL DATA**

Α. Technical information contained herein relies entirely on tests and ratings provided by manufacturers who are solely responsible for their accuracy. The Engineer, by use of this information in no way implies the results of published manufacturer's information has been verified.

#### AS SPECIFIED EQUIPMENT 2.3

A. This specification generally lists only one make and model number for each item of equipment or material required for the project. This is not intended to be restrictive but is intended to indicate the standard of quality, design and features required. In addition, the listed product is the basis of the design regarding physical size, electrical power requirements and performance. The product so identified is designated "as specified."

#### 2.4 SUBSTITUTION OF MATERIALS

- Listing of approved materials is not intended to prevent acceptance of other materials A. provided the substitute products are submitted for approval and have been approved in accordance with the Substitution of Materials requirements.
- Β. Approval Prior to Installation
  - All substitution requests shall be made on the substitution request form. 1.
  - 2. The Contractor shall be responsible for a substitute item suiting the space limitations shown and for any additional installation costs incurred by the substitution.
  - 3. Approval of substitute materials shall not be construed as authorizing any deviation from the contract drawings and specifications except where such deviation is clearly described in writing on the substitution request form and is approved in writing by the Engineer.
  - 4. Requests shall clearly define and describe the proposed substitute product. Such requests shall be accompanied by samples, record of performance, certified test reports and such additional information as the Engineer may require to satisfactorily evaluate the substitute product(s).
- C. Approval Prior to Bid Opening
  - Bidders or vendors may submit prior approval requests for substitute materials that are 1 similar in appearance, quality and performance to those specified herein or on the drawings.
  - 2. All requests shall be made in writing at least ten (10) days prior to date of bid opening using the substitution request form. Telephone requests and written requests for approval received in the engineer's office less than ten (10) days prior to bid opening will not be accepted.
  - 3. Approved substitute materials will normally be included in addenda published prior to bid opening.
- D. Approval After Contract Award: Substitute products will be considered after contract award only under these conditions:

specified materials within ten days after notice to proceed and received written confirmation of non-availability from the supplier(s). The reason of non-availability shall be beyond the contractor's control such as: discontinuation of manufacture, strikes and acts of God.

- 2. Contract Price Adjustments: The Contractor may submit substitution requests for Owner cost savings. All substitute request forms submitted after award of contract shall clearly indicate the proposed contract price change or the request will not be considered.
- 3. Where Permitted in the Specifications: For items where "approval prior to bidding" is not required in these specifications. It shall be the contractors' responsibility to show that a substitute item is equal or superior in performance and quality to the specified item.
- E. No Substitute:
  - 1. It is the intent of this specification to require specific materials to be compatible with the existing installation. Certain materials and systems, consequently, are indicated "No Substitute" and shall be provided as specified.

## 2.5 COMPLETE SYSTEMS

A. All systems specified herein and shown on the drawings shall be complete and operational in every detail. Mention of certain materials in bidding documents shall not be construed as releasing the Contractor from furnishing such additional materials and performing all labor required to provide a complete and operable system.

## 2.6 SUBMITTALS

- A. Purpose of Submittals
  - 1. Submittals processed by the Engineer are not change orders. The Contractor, by the submittal process, demonstrates an understanding of the design concept by indicating equipment and materials intended to be provided and fabrication/installation methods intended to be utilized to meet all requirements of the contract documents.
  - 2. The Engineer's review is for general conformance with the design concept and the contract documents. Markings or comments shall not be construed as relieving the Contractor from compliance with the contract documents.
- B. Submittal items: Submittals shall include, but not be limited to the following items:

Raceways	Protective Device Coordination Study
Wiring Devices	Arc Flash and PPE Study
Disconnects	Short Circuit Study
Lighting Fixtures	Switchboard and Panels with Coordination Study
Time Switch	Splicing Kits
Nameplates	Labels
Wires and Cables Fuses	Pre-cast Concrete Handholes/Covers
Fused Disconnects	Items Requested by Engineer

- C. Submittal Format
  - 1. A transmittal letter with reference identification (i.e., Electrical Submittal No. 1, material

lists and catalog data, etc.) shall accompany all submittals.

- 2. Provide electronic PDF copy of each submittal items.
- 3. All information contained in the electronic PDF shall be grouped by specification sections.
- D. Submittal Completeness
  - The Contractor shall make every effort to ensure the completeness of the initial submittal. Availability of certain shop drawings and catalog materials, however, may prevent this. Submittal shall not be delayed past specified time periods to await delivery of the missing items. The Contractor, instead, shall identify missing items on the transmittal letter and provide index listings and divider tabs for later insertion of these materials into the completed submittal brochure.
- E. Engineer's Selection of Materials for Installation: The Engineer may select specified items that the Contractor shall provide, without change in contract price or time of completeness, under these circumstances:
  - 1. Late and/or Unqualified Partial Submittals: Submittals must be made within the specified time periods; all partial submittals shall indicate manufacturer(s) catalog numbers, pertinent technical information and status of missing items.
  - 2. Failure to follow Re-submittal Procedures: Contractor, within 14 days after the Engineer rejects any items, shall re-submit new materials for approval.
  - 3. Materials have been submitted and rejected twice by the Engineer.
- F. Contractor's Responsibilities: The Contractor is responsible for all submittal details, accuracy of quantities and dimensions, selection of fabrication processes and techniques of assembly.
  - 1. The Contractor shall furnish equipment/material suppliers with all Drawings and Specifications pertinent to their work.
  - 2. The Contractor shall review, stamp and sign all submittals and shop drawings, prior to submitting shop drawings to the Engineer for review. Contractor shall correct them to ensure compliance with the specifications and drawings. Obtain Engineer's written approval before manufacture is started on any special equipment.
  - 3. Deviation from Shop Drawings in fabrication and/or installation of equipment is not permitted unless proposed changes are clearly noted in writing by the Contractor and approved in writing by the Architect/Engineer at the time of submittal.
  - 4. Maintain at least one complete approved submittal brochure on the jobsite for reference during construction.

## 2.7 ELECTRICAL EQUIPMENT IDENTIFICATION

- A. General: These items shall be provided with nameplates:
  - 1. All motors, motor starters, pushbutton stations, control panels and time switches.
  - 2. Disconnect switches, switchboards, panelboards, time clocks, low voltage control panels and circuit breakers, contactors, and relays in separate enclosures.
  - 3. Wall switches controlling receptacles, lighting fixtures or equipment where the receptacles are not located within sight of the controlling switch.

- 4. Special systems shall be properly identified at outlets, junction and pull boxes, terminal cabinets and equipment racks.
- B. Nameplate Inscription
  - 1. All nameplates shall adequately describe the function or operation of the identified equipment as required.
  - 2. Panelboard and Switchgear nameplates shall include equipment designation, voltage and phase of supply, i.e., Panel A, 208/120V, 3 phase, 4 wire.
  - 3. Nameplate designations shall be consistent for all components of a particular piece of equipment, such as starter, disconnect switch, Push Button control station(s) and the like.
  - 4. Contractor shall submit a complete list of nameplates for approval.
- C. Nameplate Construction
  - 1. Nameplates shall be laminated phenolic plastic with minimum 3/16" high black engraved characters on white background (alternate background colors shall be provided as noted in the specifications or drawings for special applications).
  - 2. Nameplates shall be securely fastened to the equipment with No. 4 round-head phillips, cadmium plated steel, self-tapping screws. Contact cement adhesive only is not acceptable.
  - 3. Motor nameplates may be non-ferrous die-stamped metal, minimum 0.03 inch thick, in lieu of separate phenolic nameplate. Device plates may be identified by engraving directly on the plate. All engraved or stamped lettering shall be filled with contrasting enamel.

## PART 3 - EXECUTION

## 3.1 PROTECTION OF WORK

- A. Protect all work, wire, cable, materials and equipment installed under this division against damage by other trades, weather conditions or any other causes. Equipment found damaged or in other than new condition will be rejected as defective.
- B. Switchgear, panels, light fixtures and electrical equipment shall be kept covered or enclosed to exclude moisture, dust, dirt, plaster, cement, or paint and shall be free of all such contamination before acceptance. Enclosures and trims shall be in new condition, free of rust, scratches or other finish defects. Properly refinish in a manner acceptable to the Engineer if damaged.
- C. Keep conduit and raceways closed with suitable plugs or caps during construction to prevent entrance of dirt, moisture, concrete or foreign objects. Raceways shall be clean and dry before installation of wire and at the time of acceptance.
- D. Make up and insulate wiring promptly after installation of conductors. Wire shall not be pulled-in until raceways are complete, all bushings are installed, and raceway terminations are completed. Wire shall not be pulled into conduit embedded in concrete until after the concrete is placed and forms are removed.

## 3.2 CUTTING AND PATCHING

- A. Obtain permission from the Architect/Engineer prior to cutting. Locate cuttings so they will not weaken structural components. Cut carefully and only the minimum amount necessary. Cut concrete with diamond core drills or saws except where space limitations prevent the use of such equipment.
- B. Penetrations of fire rated elements shall be carefully made to maintain that rating after the installation is complete. See Section 01 3100 and Section 07 8400.
- C. All construction materials damaged or cut into during the installation of Division 26 work must be repaired or replaced with materials of like kind and quality as original materials by skilled labor experienced in that particular building trade.

## 3.3 EXCAVATIONS

- A. The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility locations prior to construction by calling the underground locate line at 1-800-424-5555 a minimum of 48 hours prior to any excavation. The contractor will also be responsible for maintaining all locate marks once the utilities have been located.
- B. All excavations are to be so conducted that no walls or footings shall be disturbed or injured in any way.
- C. Remove all surplus earth not needed for backfilling and dispose of same as appropriate at a licensed disposal facility.

## 3.4 PAINTING

- A. Painting in general will be covered under another Division of this specification. Items furnished under this Division scratched or marred in shipment or installation are to be refinished by the Contractor to the satisfaction of the Engineer.
- B. Junction boxes for telecom shall be painted blue. Fire alarm junction boxes shall be painted red.

## 3.5 CLEAN UP

A. Contractor shall continually remove debris, cuttings, crates, cartons, etc., created by his work. Such clean up shall be done at sufficient frequency to minimum hazard to the public, other workmen, the building and the Owner's employees. Before acceptance of the installation, Contractor shall carefully clean cabinets, panels, wiring devices, coverplates, etc., to remove dirt, cuttings, paint, plaster, mortar, concrete, etc. Blemishes to finished surfaces or apparatus shall be removed and new finish equal to the original applies.

## 3.6 LABELING

- A. Clearly and properly label the complete electrical system, as specified herein, to indicate the loads served or the function of each item of equipment connected under this contract.
- B. Control circuits shall utilize combinations of colors with each conductor identified throughout using wrap around numbers or letters. Identification shall be consistent with the contract drawing requirements and operation and maintenance shop drawings.

C. Labels shall be provided on all disconnects, combination motor starter, and junction boxes indicating the specific panel and branch circuit utilized. Do not provide circuiting labels on light switch and receptacle cover plates

## 3.7 MECHANICAL EQUIPMENT CONNECTIONS

- A. Provide complete electrical connections for all items of equipment, including incidental wiring, materials, devices and labor necessary for a finished working installation.
- B. Mechanical/Electrical equipment connection coordination shall be as follows:

FURNISHED ITEM	INSTALLED BY	POWER BY	CONTROL WIRING BY	WIRING BY
Mechanical Equipment Motors	MC	MC	EC	МС
Fused & Unfused Disconnect Switches, Thermal Overload & Heaters	EC	EC	EC	
Motor Starter & Overload Heaters	EC	EC	EC	MC
Manual Operating & Speed Switches	MC	EC	EC	МС
Control Relays & Control Transformers	MC	MC	EC**	MC
Low Voltage Thermostats	MC	MC	EC**	MC
Temperature Control Panels	MC	MC	EC**	МС
DDC Panels	MC	MC	EC**	MC
Motor & Solenoid Valves, Damper Motors, PE & EP Switches	MC	МС		MC
Fire/Smoke Dampers (Actuators)	МС	МС	EC***	MC/EC*
Duct-Mounted Smoke Detectors	EC	MC		MC/EC*
MC = Division 23				

EC = Division 26

\* Motor interlock by MC, Fire Alarm System Interconnection by EC.

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- \*\* EC shall provide conduit and wire from nearest un-switched 120V circuit location. Label on "as built" drawings.
- \*\*\* EC shall provide conduit and wire from nearest 120V panel. Connect to spare circuit breaker and label on "as-built" drawings.

## 3.8 SUPPORT AND ALIGNMENT

- A. Each fastening device and support for electrical equipment, fixtures, panels, outlets and cabinets shall be capable of supporting not less than four times the ultimate weight of the objects fastened to or suspended from the building structure.
- B. Install panels, cabinets and equipment level, plumb, and parallel with structural building lines. Switchgear, panels and all electrical enclosures shall fit neatly without gaps, openings or distortion. Properly and neatly close all unused openings with approved devices.
- C. Fit surface panels, devices and receptacles with neat, appropriate trims, plates or covers, (without over-hanging edges, protruding corners or raw edges) to leave a finished appearance.
- D. All junction boxes, pull boxes or other conduit terminating housings located above a suspended ceiling shall be securely suspended from structure or ceiling grid system to prevent sagging or swaying.

### 3.9 NOISE CONTROL

- A. Back-to-back or straight-through installation of wall or partition boxes is not permitted to minimize noise transmission between occupied spaces.
- B. Contactors, transformers, starters and similar noise producing devices shall not be placed on walls which are common to occupied spaces. Where such devices must be mounted on walls common to occupied spaces, they shall be shock mounted or isolated in such a manner as to effectively prevent the transmission of their inherent noise to the occupied space.
- C. Ballasts, contactors, starters, transformers and like equipment which are found to be noticeably noisier than other similar equipment on the project will be deemed defective and shall be replaced.

END OF SECTION

## PREBID SIGN IN SHEET

DATE: <u>9/13/2023</u>

SPEC TITLE: <u>Main Library Remodel</u>

1 Ross Mckenzie Bayley Constr. 1055m@bayley.net 2 RYAN HUGHES ANDY JOHNSON & CO bids@ ajcocontractors.com 3 Kevin Aureison Custom Electriziantalis Kevinan & customec.com 4 avin Campbell Working Ball Rose for in convecting fall drung, cu 5 Joe Auberch HALBOR ELECTER AND BUSCHARBORELECTAIC.Ne 6 Alli Moore Daward Electric allim a galavardelectric.com 7 Nean Bangot Reliable Ele Neap berein placheters.com 8 Brice Anderson Cross Eng. Brice Accrossengineers.com 9 Taus Casswell Western Ventures Info@ western venture in 10 JAMES MTCRERY PEASE CONSTRUCTION estimating@peaseinc.com 11 TRAVIS Schoson Carital HEATING & Construction Carital HEATING & Construction Construction Construction Carital HEATING & Construction Construction Carital HEATING & Construction Construction Carital HEATING &		Name	Company	Email
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## **GENERAL NOTES:**

- 1. ELECTRICAL REQUIREMENTS ARE NOT LIMITED TO ELECTRICAL DRAWINGS AND SPECIFICATIONS. THERE IS ADDITIONAL ELECTRICAL WORK REQUIRED TO BE INCLUDED IN THE BID, INDICATED ON ARCHITECTURAL AND MECHANICAL DRAWINGS. ADDITIONAL ELECTRICAL WORK REQUIRED IN THE BID IS ALSO LOCATED IN THE SPECIFICATIONS. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL AND MECHANICAL SPECIFICATIONS FOR ADDITIONAL ELECTRICAL INFORMATION AND INCLUDE COSTS FOR THIS WORK IN THE BID.
- 2. CONTRACTOR SHALL INCLUDE IN HIS BID LIGHTING CONTROL COMMISSIONING COSTS. CONTRACTOR SHALL PROVIDE THE OWNER A COMPLETE REPORT OF TEST PROCEDURES AND RESULTS INDICATING ALL LIGHTING CONTROLS HAVE BEEN TESTED, ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS AND THE WASHINGTON STATE NONRESIDENTIAL ENERGY CODE, SECTION C408. CONTRACTOR SHALL PROVIDE A SPREAD SHEET INDICATING ROOM NUMBER, TYPE OF CONTROL (OCCUPANCY SENSOR, LOW VOLTAGE, ETC.), VERIFICATION OF PROPER WORKING ORDER, AND ADJUSTMENTS MADE.
- 3. CONTRACTOR SHALL CONCEAL CONDUIT WHEREVER POSSIBLE. CONTRACTOR SHALL SUBMIT TO ARCHITECT FOR REVIEW AND APPROVAL, ALL ROUTINGS OF ANY EXPOSED CONDUIT PRIOR TO ROUGH-IN. NO EXPOSED CONDUIT SHALL BE INSTALLED UNTIL APPROVAL IS PROVIDED IN WRITING FROM THE ARCHITECT ALL EXPOSED CONDUIT SHALL BE ROUTED IN A NEAT AND WORKMANSHIP LIKE MANNER.
- 4. CONTRACTOR SHALL PROVIDE A HOT-WIRE OF THE SAME CIRCUIT FOR ALL LIGHT FIXTURES WITH BATTERY PACKS, SO THAT THE BATTERY PACK IS BEING CHARGED AT ALL TIMES.
- 5. CONTRACTOR SHALL SEE ARCHITECTURAL DRAWINGS FOR THE FIRE WALL SEPARATIONS. CONTRACTOR SHALL PROVIDE CAULKING, SEAL-OFFS, ETC. AS REQUIRED BY CODE TO RETAIN FIRE WALL SEPARATION RATINGS.
- 6. CONTRACTOR SHALL INCLUDE IN THE BID ALL COSTS TO HAVE A DEPARTMENT OF LABOR AND INDUSTRIES APPROVED FIRM TO EVALUATE THE INSTALLATION, SAFETY, AND COMPLIANCE WITH CODE AS REQUIRED PER W.A.C. 296-46B-901. FOR ANY EQUIPMENT SPECIFIED OR FURNISHED THAT IS NOT UL LABELED.
- 7. ALL WALL PENETRATIONS SHALL BE NEATLY CORE-DRILLED, CAULKED AND SEALED TO MAINTAIN FIRE, AND WATERPROOF RATING. PATCH, REPAIR, AND PAINT TO MATCH EXISTING.
- 8. ELECTRICAL CONTRACTOR SHALL HAVE TWO ELECTRICIANS AVAILABLE FOR AN AFTERHOURS (AFTER DARK) FINAL PUNCH LIST TO REVIEW AND PROGRAM / TRIM LIGHTING CONTROLS WITH THE LIGHTING DESIGNER. CONTRACTOR SHALL ANTICIPATE 6 HOURS AND HAVE A LADDER AVAILABLE TO COMPLETE THIS WORK.
- 9. CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING LIGHTING ON LEVELS 1 AND 2 AND DISPOSING OF IN LEGAL MANNER. SEE ARCHITECTURAL RCP DEMOLITION PLAN FOR FIXTURE LOCATION AND COUNTS.

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A B	DETAIL/SECT WHERE DET
A B	Equipment Mechanicai Equipment Rough-in. [ Report any
	CONDUIT CC CODE SIZE C IN 3/4" COND GROUND CO
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<b>&gt;</b>	A-1,3 ADJAC CIRCUITS 1 A
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6" POKE-THI **EVOLUTION** CLOSET AND

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DOOR CON FOR A COM RS485 CABL

## TRICAL SYMBOLS LEGEND

DETAIL/SECTION IDENTIFICATION: A = DETAIL/SECTION LETTER, B = SHEET NUMBER WHERE DETAIL/SECTION IS DRAWN. EQUIPMENT CONNECTION CALLOUT. A,B EQUAL EQUIPMENT IDENTIFICATION ON		CAMERA LOCATION. 1 MOUNTING HARDWAR MOUNTING HARDWAR LOCATION TO SECUR
MECHANICAL OR KITCHEN EQUIPMENT CONNECTION SCHEDULES. VERIFY EXACT EQUIPMENT REQUIREMENTS ON SHOP DRAWING EQUIPMENT SUBMITTALS PRIOR TO ROUGH-IN. DO NO ROUGH-IN FOR EQUIPMENT PRIOR TO REVIEW OF SUBMITTALS. REPORT ANY DIFFERENCES IN REQUIREMENTS TO ENGINEER IN WRITING.		E3.03 FOR SECURITY INTERCOM LOCATION AIPHONE #SBX-IXGDM
CONDUIT CONCEALED. HASH MARKS INDICATE NUMBER OF #12 CONDUCTORS IN CODE SIZE CONDUIT. NO HASH MARKS INDICATES 2-#12 CONDUCTORS PLUS GROUND IN 3/4" CONDUIT, LONG HASH MARKS INDICATES NEUTRAL CONDUCTOR. / INDICATES	VIT	VIDEO INTERCOM TEN PER MANUFACTURER
		DOOR CONTACTS. CO
A-1,3 ADJACENT TO ARROW INDICATES HOMERUN OF CONDUCTORS IN CONDUIT FOR CIRCUITS 1 AND 3 TO PANEL "A".	Ę	CORNER OF LEVEL 1 / SUPPLY SHALL BE LO ON LEVELS 2 & 3.
EXIT LIGHT WITH BATTERY, UNIVERSAL MOUNTING.	s	
EMERGENCY FLOODLIGHT WITH BATTERY.		4 = FOUR WAY, D = DII
LED LIGHT FIXTURE, SURFACE MOUNTED ON CEILING.		FIXTURES CONTROLL
LED LIGHT FIXTURE, RECESS MOUNTED IN CEILING.	ST	DIGITAL 0-12 HOUR TI
LED LIGHT FIXTURE, WITH EMERGENCY BATTERY PACK.	Sr	AUTOMATIC/MANUAL
LED LIGHT FIXTURE, WALL MOUNTED.		SWITCH. WATT STOP PROGRAMMED FOR M
LED STRIP LIGHT FIXTURE. SURFACE MOUNTED OR CHAIN HUNG FROM CEILING.	65	DUAL TECHNOLOGY A
LED DOWNLIGHT FIXTURE.	0	POWER PACK (WATT
LED WALL MOUNT LIGHT FIXTURE.	PS	DAYLIGHT PHOTOSEN
JUNCTION BOX.		DISCONNECT SWITCH
LIGHT FIXTURE TYPE. A1 = SPECIFIC LIGHTING FIXTURE REFERENCED ON LIGHTING FIXTURE SCHEDULE.	$\square$	FUSED DISCONNECT
PHOTOCELL, MOUNT ON ROOF FACING NORTH.	Sm	MOTOR RATED TOGG
POWER PANEL	$\bigtriangledown$	
DUPLEX RECEPTACLE 20A, 125 VOLT WALL MOUNTED AT 18 INCHES AFF. G = GROUND FAULT INTERRUPTING, T = TAMPERPROOF.		AND (4)CAT 6 DATA CA SHALL PROVIDE PATC
DUPLEX RECEPTACLE 20A, 125 VOLT WALL MOUNTED HORIZONTALLY 2" ABOVE COUNTERTOP BACKSPLASH TO THE BOTTOM OF THE RECEPTACLE COVERPLATE.		NETWORK SWITCHES CABLES, BOTH ENDS.
FOURPLEX RECEPTACLE 20A, 125 VOLT, WALL MOUNTED AT 18 INCHES AFF.		WIRELESS ACCESS P
FOURPLEX RECEPTACLE. (2)20A, 125 VOLT, DUPLEX RECEPTACLES; ONE SWITCHED, ONE UN-SWITCHED, WALL MOUNTED AT 18 INCHES AFF. U = USB / 120V, 20A DUPLEX RECEPTACLE.	v	AND TERMINATE AT P AND JUMPERS. CONT CONTRACTOR SHALL
SPECIAL RECEPTACLE. AMPERAGE AND VOLTAGE AS SHOWN.	Ŧ	GROUND PER NEC.
EQUIPMENT CONNECTION. PROVIDE PER NEC AND MANUFACTURERS REQUIREMENTS AND/OR RECOMMENDATIONS.	F	MANUAL FIRE ALARM ALL NEW FIRE ALARM
6" POKE-THRU FLOORBOX WITH (2)120V, 20A DUPLEX RECEPTACLES AND (4) DATA PORTS (WIREMOLD EVOLUTION SERIES OR APPROVED EQUAL). CONTRACTOR SHALL PROVIDE 1"C-(4)CAT 6 CABLES TO I.T. CLOSET AND TERMINATE ON NEW PATCH PANELS.		GAMEWELL E3 FIRE A ALARM CONDUCTORS PANEL. CONTRACTOR FIRE ALARM DRAWING
UNDER CARPET LEGRAND CONNECTRAC FLEX SYSTEM OR APPROVED EQUAL. CONTRACTOR SHALL PROVIDE POWER HUB (1)120V, 20A DUPLEX RECEPTACLES AT EACH SYMBOL LOCATION (CIRCLE WITH "P1") AND POWERTRAC RACEWAY TO WALL / COLUMN INDICATED ON FLOOR PLANS. WHERE THE POWERTRAC SYSTEM BUTTS UP TO A WALL OR COLUMN, CONTRACTOR SHALL PROVIDE CONDUIT/WIRE HOMERUN BACK TO POWER PANEL INDICATED. CONTRACTOR SHALL VERIFY EXACT LOCATIONS WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.		FIRE ALARM HORN/AD LEVEL. ALL NEW FIRE GAMEWELL E3 FIRE A ALARM CONDUCTORS PANEL. CONTRACTOR
UNDER CARPET LEGRAND CONNECTRAC FLEX SYSTEM OR APPROVED EQUAL. CONTRACTOR SHALL PROVIDE POWER HUB (2)120V, 20A DUPLEX RECEPTACLES AT EACH SYMBOL LOCATION (CIRCLE WITH "P2") AND POWERTRAC RACEWAY TO WALL / COLUMN INDICATED ON FLOOR PLANS. WHERE THE POWERTRAC SYSTEM BUTTS UP TO A WALL OR COLUMN, CONTRACTOR SHALL PROVIDE CONDUIT/WIRE HOMERUN BACK TO POWER PANEL INDICATED. CONTRACTOR SHALL VERIFY EXACT LOCATIONS WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.		FIRE ALARM DRAWIN FIRE ALARM MINI ADA LEVEL. ALL NEW FIRE GAMEWELL E3 FIRE A
VAPE DETECTION DEVICE. HALO SMART SENSOR 3C OR APPROVED EQUAL. MOUNT ON WALL 12" BELOW CEILING. CONTRACTOR SHALL PROVIDE (1) CAT6 CABLE FROM VAPE DETECTOR TO CITY OF TACOMA'S CORPORATE NETWORK EXISTING CISCO POE SWITCHES IN THE SECOND FLOOR IDF#2 CLOSET AND TERMINATE. CONTRACTOR SHALL PROVIDE		PANEL. CONTRACTOR FIRE ALARM DRAWIN
STAFF WHEN DEVICES HAVE BEEN TRIGGERED. REX DEVICE (REQUEST TO EXIT). SEE ACCESS CONTROL DETAILS ON SHEET E6.00 FOR		GAMEWELL E3 FIRE A ALARM CONDUCTORS PANEL. CONTRACTOR
	Ĥ	HEAT DETECTOR ALL
KANTECH #P345MTR WITH MOUNTING HARDWARE.		GAMEWELL E3 FIRE A ALARM CONDUCTORS PANEL. CONTRACTOR
FOR A COMPLETE SYSTEM PER MANUFACTURERS REQUIREMENTS. CONTRACTOR SHALL PROVIDE (1) RS485 CABLE TO IT EQUIPMENT ON ASSOCIATED FLOOR AND TERMINATE.		
	V S S	EQUAL. "X" = VOLTAGE AND/OR PANEL SCHE

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WEATHERPROOF

180° AND 360° CAMERAS = ILLUSTRA FLEX MULTISENSOR #IFS16-M10-BT03 WITH RE. FIXED DOME CAMERAS = ILLUSTRA FLEX GEN4 #IFS02-D12-ITA4 WITH RE. CONTRACTOR SHALL PROVIDE (1)CAT 6 CABLES FROM EACH CAMERA RITY ROOM ON LEVEL 3 AND TERMINATE AT NEW POE SWITCH. SEE SHEET HEADEND LOCATION.

I. AIPHONE #IXG-DM7-HID WITH STAINLESS STEEL SURFACE MOUNT BOX M7. PROVIDE ALL WIRING PER MANUFACTURERS REQUIREMENTS FOR A RATIONAL INTERCOM SYSTEM.

NANT STATION (AIPHONE #IXG-2C7) FOR INTERCOM SYSTEM. PROVIDE ALL WIRING RS REQUIREMENTS FOR A COMPLETE AND OPERATIONAL INTERCOM SYSTEM.

ONTRACTOR SHALL PROVIDE 1/2"C-#18/2 BETWEEN DOOR CONTACTS AND POWER OR POWER SUPPLY SHALL BE LOCATED IN NEW CABINET INDICATED IN THE SOUTHEAST AND WILL SERVE ALL CONTROLLED DOORS ON LEVEL 1. SECOND FLOOR POWER DCATED IN THE SOUTH WALL OF ROOM 204 AND WILL SERVE ALL CONTROLLED DOORS

GLE TYPE, SINGLE POLE, SUBSCRIPTS; 3 = THREE WAY, IMMER CONTROL, K = KEY OPERATED, P = PILOT LIGHT, R OF SWITCHES AT THE LOCATION AND SPECIFIC LED. MOUNT AT 42 INCHES AFF.

IMER SWITCH. WATTSTOPPER TS-400 OR EQUAL

\_ OCCUPANCY SENSOR AND SINGLE POLE TOGGLE PPER DW-100 OR EQUAL. SWITCH SHALL BE MANUAL ON, AUTOMATIC OFF.

AUTOMATIC OCCUPANCY SENSOR DEVICE WITH STOPPER #DT-300).

NSOR

SWITCH WITH FUSES.

GLE SWITCH WITH OVERLOAD HEATER(S), SIZE PER URERS REQUIREMENTS.

JAL TELEPHONE/DATA OUTLET, MOUNT AT 18" AFF. BOX WITH 1" CONDUIT TO ACCESSIBLE CEILING SPACE CABLES TO I.T. ROOM ON SECOND FLOOR. CONTRACTOR CH PANEL(S) AND MOUNTING HARDWARE IN EXISTING DATA W DATA CABLING AND TERMINATE. OWNER WILL PROVIDE ALL SAND JUMPERS. CONTRACTOR SHALL PROVIDE LABELS ON ALL

POINT. PROVIDE (1)CAT 6A CABLE TO NEAREST IT ROOM PATCH PANEL. OWNER WILL PROVIDE ALL NETWORK SWITCHES TRACTOR SHALL PROVIDE LABELS ON ALL CABLES, BOTH ENDS. . PROVIDE CISCO, MODEL AIR-AP3802E WIRELESS ACCESS POINT.

/I PULL STATION. WALL MOUNT AT 42 INCHES AFF. I DEVICES SHALL BE COMPATIBLE WITH THE EXISTING ALARM SYSTEM. CONTRACTOR SHALL PROVIDE PLENUM RATED FIRE RS AND CONNECT NEW DEVICES TO EXISTING ADDRESSABLE FIRE ALARM R'S FIRE ALARM SUB-CONTRACTOR IS RESPONSIBLE FOR PROVIDING CIRCUITED NGS AND BATTERY CALCULATIONS FOR THE FIRE MARSHALL'S APPROVAL.

ADA STROBE. WALL MOUNT AT 80 INCHES AFF. SUBSCRIPT INDICATES CANDELA E ALARM DEVICES SHALL BE COMPATIBLE WITH THE EXISTING ALARM SYSTEM. CONTRACTOR SHALL PROVIDE PLENUM RATED FIRE RS AND CONNECT NEW DEVICES TO EXISTING ADDRESSABLE FIRE ALARM DR'S FIRE ALARM SUB-CONTRACTOR IS RESPONSIBLE FOR PROVIDING CIRCUITED IGS AND BATTERY CALCULATIONS FOR THE FIRE MARSHALL'S APPROVAL.

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E SURGE SUPPRESSION. TPS3-X-11-15-D2, SIEMENS OR GE/ PHASE (VARIES), SEE POWER RISER DIAGRAM EDULES FOR VOLTAGE AND PHASE REQUIREMENTS.

architecture design preservation

159 western avenue west, suite 486 seattle, washington 98119

office 206 775-8668 www.buildingwork.design

PROJECT **Tacoma Public Library** Main Branch Renovation

LOCATION 1102 Tacoma Ave S **Tacoma WA 98402** 

PREPARED FOR **Tacoma Public** Library

DATE

9/18/23 Addendum

ARCHITECT STAMP

REVISION





CROSS ENGINEERS, INC 923 MLK Jr. Way Tacoma, WA 98405 info@crossengineers.com Phone: (253) 759-0118 Job Number: 22-171

## ELECTRICAL LEGEND/ FIXTURE SCHEDULE

08/11/2023

BID SET

E0.00 © 2023 BUILDINGWORK, LLC

Type Rev	e Description	Mfr.	Catalog	Source	Fixture Watts	Dim.	Location													
L1	Linear recessed downlight. Fixture to be constructed out of extruded aluminum with a TBD finish. Fixture to measure 3/16" wide x 31/4" tall x various lengths as per drawings. Fixture to have flat lens and mount to edge of grid.	Axis	B2SQRLED-600- 80-30-BW-LENGTH PER PLANS- DMLED-W-UNV-DP- 1-T(MOUNTING)	600lm/ft 3000K 80CRI	6 w-ft	0-10V to 1%	Various locations		Recessed downlight with 3 1/2" aperture. Fixture to be constructed out of die-cast aluminum with a matte silver finish. Fixture to measure 4 1/8" tall x 3 3/4" diameter with a 3 1/2" aperture and a 5" diameter flange. Fixture to have a 60 degree beam spread		2-120-T-05-SAS-	2000lm		0-10V to	Various	L13	Track mounted accent to mount to grid. Fixture to be constructed out of aluminum with a black finish. Fixture to measure 4 13/16" wide x 2 3/4" diameter x 4 3/4" tall. Provide accessory's as specified to be used at lighting designer's aiming session as needed.A Line	FLX15 A-FLX15-30-60-T- BK-T-H	550lm 3000K 15 92CRI	1st floor Carnegie
L1X L2	SAME AS TYPE L1 WITH EMERGENCY BATTERY Recessed 2x2 downlight with regressed lens. Fixture to be constructed out of die formed cold rolled steel with a 0.125" PMMA satin blend lens and a white finish. Fixture to measure 2' wide x 2' length x 5 9/16" tall.	Axis	SKPA-22-3500-80- 30-SO-RE-W-UNV- DP-1- T(MOUNTING)-FW	3500lm 3000K 80CRI	33	0-10V to 1%	Various locations	L5B	distribution. Fixture to mount into gyp ceiling. Fixture to replace existing recessed downlight and requires a 4.5" hole. L5B to replace existing downlight fixtures contractor to determine ceiling opening dimensions and if any patching is required.	Lightheaded	I XTM60-30-8320 / D4X-F-T-7-P-VOLT	3000K 83CRI	14	1%	Locations	T1	Linear recessed rack. Fixture to be constructed out of extruded aluminum with a black finish. Track to measure 5/8" A Line wide x 1 3/8" tall x lengths as shown in drawings.	ATKLENGTH-BK		
	Linear recessed downlight in shape of square. Fixture to be constructed out of extruded aluminum with an extruded acrylic lens and a white finish. Fixture to measure 3/16" wide x 31/4" tall x exact configuration sizes as per drawings. Fixture to have 1" dropped lens and mount to	Axis	B2SQRLEDPAT-S- LENGTH PER PLANS-OPR-600- 80-30-1M-NL-W-	600lm/ft 3000K 80CRI	6 w-ft	0-10V to 1%	First Floor Stacks	L5BX L6	SAME AS TYPE L5B WITH EMERGENCY BATTERY Large decorative pendant downlight. Fixture to be constructed out of a laminated fabric with a TBD finish. Fixture to measure 36" diameter x 12" tall. Bottom of fixture to be various heights to be coordinated with architect. Fixture to be provided with field	Barbican	Gear Drum 16-77-36D-12H- HTO-LED72-VOLT- 3000K-ACB-FINISH- 90CRI-DB(0-10V)	3000K 90CRI	72	0-10V	Living Room Space	L14 L14X	to be constructed out of aluminum and steel with a TBD finish. Fixture to measure 24" diameter x 6.5" tall. Bottom of fixture TBD AFF. Fixture to be provided with a field adjustable cable. Suspension height to be coordinated with lighting design team. SAME AS TYPE L14 WITH EMERGENCY BATTERY	WARP2P24- LMA0490-LMB0120- CR80-CTA30-UD2- VOLT-DA01-FINISH- CANOPY	Uplight: 1200lm 3000K Downlight: 54 4900lm 3000K 80+CRI	0-10V to 2nd floor 1% Carnegie
	edge of grid. Fixture to be provided with 90 degree corner and all parts and pieces required for a functional system in the configuration shown.		UNV-DP-1-T(XX)					L6A	Adjustable aircraft cable. Large decorative pendant downlight. Fixture to be constructed out of a laminated fabric with a TBD finish. Fixture to measure 48" diameter x 12" tall. Fixture to be provided with field adjustable aircraft cable.	Barbican	Gear Drum 16-77-48D-12H- HTO-LED72-VOLT- 3000K-ACB-FINISH- 90CPLDB(0, 10V)	3000K 90CRI	72	0-10V	Living Room Space	L15	Pendant mounted adjustable accent spotlight. Fixture to be constructed out of extruded aluminum with a TBD finish. Fixture to measure 6" tall x 3" diameter with a 3" tall x 3" diameter canopy. Bottom of fixture before aiming TBD AFF. Fixture to be provided with a field adjustable cable. Provide	C3PA-R-6-FINISH- FINISH-B55-30- 9014-P1-VOLT-3C- HC-SI	1400lm 3000K 11 90CRI	0-10V to 1% Childrens Area
L3A	extruded acrylic lens and a white finish. Fixture to measure 3/16" wide x 31/4" tall x various lengths as per drawings. Fixture to have 1" dropped lens and mount to edge of grid.	Axis	B2SQRLED-600-80- 30-1M-LENGTH-W- UNV-DP-1- T(MOUNTING)	600lm/ft 3000K 80CRI	6 w-ft	0-10V to 1%	First Floor Stacks		Pendant mounted linear downlight. Fixture to be constructed out of extruded aluminum with a white finish. Fixture to measure 3/16" wide		B2SQDLED-800-80- 30-L-12-DMLED-	800lm/ft		0-10V to			accessory's as specified to be used at lighting designer's aiming session as needed. Suspension height to be coordinated with lighting design team. Pendant mounted back of house downlight. Fixture to be			
L3AX	EMERGENCY BATTERY 2x2 recessed downlight with dropped lens. Fixture to be constructed out of extruded aluminum with a frosted acrylic lens. Fixture housing to measure 23 13/16" wide x 23 13/16" length x 4 5/6" tall.	Axis	SKFLED-22-1700- 80-30-1SF-W-UNV- DP-1- T(MOUNTING)	1300lm 3000K 80CRI	32	0-10V to 1%	Various Locations	L7	of fixture to be flush with bottom of acoustic baffles. Fixture to be provided with field adjustable cable. Fixture to be provided with a louver. Pendant mounted linear downlight. Fixture to be	Axis	FINISH-VOLT-DP- CIR-SUSPENSION	3000K 80CRI	6	1%		L16	constructed out of extruded aluminum with a white finish.Fixture to measure 3/16" wide x 31/4" tall x 8' length. Bottom of fixture to be 10' AFF. Fixture to be provided with field adjustable cable.ISAME AS TYPE L16 WITH	B2SQDLED-800-80- 30-8-DMLED- FINISH-VOLT-DP- CIR-SUSPENSION	800lm/ft 3000K 8 80CRI	0-10V to 1%
L4X	Fixture to have a 1" dropped lens.         SAME AS TYPE L4 WITH EMERGENCY BATTERY         2x2 recessed downlight with dropped lens. Fixture to be constructed out of extruded aluminum with a frosted acrylic		SKFLED-22-1700-	1700lm				L7A	constructed out of extruded aluminum with a white finish. Fixture to measure 3/16" wide x 31/4" tall x 8' length. Bottom of fixture to be flush with bottom of acoustic baffles. Fixture to be provided with field adjustable cable. Fixture to be provided with a louver.	Axis	B2SQDLED-800-80- 30-L-12-DMLED- FINISH-VOLT-DP- CIR-SUSPENSION	800lm/ft 3000K 80CRI	6	0-10V to 1%		L16X	EMERGENCY BATTERY         Wall mounted cylinder         downlight. Fixture to be         constructed out of extruded         aluminum with a TBD finish.         Fixture to measure 3" diameter         x 6" tall x 5.32 projection from         wall. Bottom of fixture TBD	C3W-R-6D-FINISH- FINISH-B55-30- 9014-P-VOLT-HC	1400lm 3000K 11 80CRI	0-10V to 1% Vestibule
L4A	<ul> <li>lens. Fixture housing to measure 23 13/16" wide x 23 13/16" length x 4 5/6" tall.</li> <li>Fixture to have a 3" dropped lens.</li> <li>2x2 recessed downlight with dropped lens. Fixture to be</li> </ul>	Axis	80-30-3SF-W-UNV- DP-1- T(MOUNTING)	3000K 80CRI	32	0-10V to 1%	Various Locations	L8	Fixture designated not in use.         Decorative pendant downlight.         Fixture to be constructed out of laminated fabric with a TBD finish. Fixture to measure 18"							 L18	AFF. Fixture to mount to HVAC unit in vestibule. Surface mounted adjustable accent. Fixture to be constructed out of extruded aluminum with a TBD finish. Fixture to measure 3" diameter Lightheaded	C3SA-R-6-FINISH- FINISH-60-30-8315-	1500lm 3000K 10	0-10V to Various
L4B	constructed out of extruded aluminum with a frosted acrylic lens. Fixture housing to measure 23 13/16" wide x 23 13/16" length x 4 5/6" tall. Fixture to have a 5" dropped lens.	Axis	SKFLED-22-1700- 80-30-5SF-W-UNV- DP-1- T(MOUNTING)	1700lm 3000K 80CRI	32	0-10V to 1%	Various Locations	L9	TBD AFF. Fixture to be provided with a field adjustable cable. Suspension height to be coordinated with lighting design team.	Barbican	VOLT-3000K-90CRI	3000K 90CRI	12	0-10V	Kids Area		x 6" tall with a 4.75" diameter x 0.25 tall canopy. Fixture to mount to center of ceiling tile. Undercabinet downlight. Fixture to be constructed out of extruded aluminum. Fixture to measure 1" wide x 1.3" tall.	P-VOLT-3C	83CRI	
L4C	dropped lens. Fixture to be constructed out of extruded aluminum with a frosted acrylic lens. Fixture housing to measure 23 13/16" wide x 23 13/16" length x 4 5/6" tall. Fixture to have a 7" dropped lens.	Axis	SKFLED-22-1700- 80-30-7SF-W-UNV- DP-1- T(MOUNTING)	1700lm 3000K 80CRI	32	0-10V to 1%	Various Locations	L10	<ul> <li>be constructed out of auminum</li> <li>with a TBD finish. Fixture to</li> <li>measure 9" tall x 6" diameter</li> <li>with a 4.8" diameter canopy.</li> <li>Bottom of fixture to be 7' 6"</li> <li>AFF. Fixture to be provided</li> <li>with a field adjustable cable.</li> <li>Suspension height to be</li> <li>coordinated with lighting design</li> <li>team.</li> </ul>	Pablo	Cielo Plus CIEL PLUS - FINISH	930lm 2700K 91CRI	13	0-10V	Teens Area	L19	Fixture segment lengths to install full length of the cabinetry to be determined as per cabinetry structure. Electrical Contractor to coordinate with cabinetry maker to determine fixture install and cabling.	LEDBAR-CCT LEGNTH-30	315lm/ft 3000K 5 80CRI	0-10V to 1% Workshop
L5	aperture. Fixture to be constructed out of die-cast aluminum with a matte silver flange finish. Fixture to measure 4 1/8" tall x 3 3/4" diameter with a 3 1/2" aperture and a 5" diameter flange. Fixture to have a 60 degree beam spread distribution	Lightheaded	2-120-T-05-SAS- XTM60-30-8315 / D4X-F-T-5-P-VOLT	1500lm 3000K 83CRI	14	0-10V to 1%	Various Locations	L11	Recessed 2x4 downlight. Fixture to be constructed out of cold rolled sheet steel with 0.125" PMMA satin blend. Fixture to measure 2' wide x 4' length x 5 9/16" tall.	Axis	SKPA-24-4000-80- 30-SO-RE-W-VOLT- DP-1-MOUNTING	4000lm 3000K 80CRI	30	0-10V to 1%	Various Locations	X1 X2	PE <u>MANUFACTURER</u> SURE-LITES APXH7-G SAME AS TYPE X1 WIT	LAMPS INCLUDED	<u>WATTS</u> 3	<u>WATTS</u> UNIVERSAL
L5X	Fixture to mount into 2x2 ceiling tile. SAME AS TYPE L5 WITH EMERGENCY BATTERY							L12	Fixture to be constructed out of extruded aluminum with a TBD finish. Fixture to measure 2 1/2" wide 2 1/2" tall x 2' length. Fixture to mount above mirror.	Axis	ED2WD-300-80-30- UB-2-FINISH-VOLT-	300lm/ft 3000K 80CRI	4	0-10V to 1%	Restrooms					
	Recessed downlight with 3 1/2" aperture. Fixture to be constructed out of die-cast aluminum with a matte silver flange finish. Fixture to								Fixture to have direct orientation (see fixture cut for mounting orientation). Bathroom vanity downlight.			ουϹΚΙ								
L5A	measure 4 1/8" tall x 3 3/4" diameter with a 3 1/2" aperture and a 5" diameter flange. Fixture to have a 60 degree beam spread distribution. Fixture to mount into gyp ceiling.	Lightheaded	2-120-T-05-SAS- XTM60-30-8310 / D4X-F-T-5-P-VOLT	1000lm 3000K 83CRI	10	0-10V to 1%	Various Locations	L12A	<ul> <li>Fixture to be constructed out of extruded aluminum with a TBD finish. Fixture to measure 2</li> <li>1/2" wide 2 1/2" tall x 4' length.</li> <li>Fixture to mount above mirror.</li> <li>Fixture to have direct orientation (see fixture cut for mounting orientation).</li> </ul>	Axis	ED2WD-300-80-30- UB-4-FINISH-VOLT- DP-CIR-FL	300lm/ft 3000K 80CRI	8	0-10V to 1%	Restrooms					
L5AX	SAME AS TYPE L5A WITH EMERGENCY BATTERY							L							·I					

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PROJEC Tacoi Main	na Publ Branch	lic Libra Renova	ary ation
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CROSS ENGINEERS, INC 923 MLK Jr. Way Tacoma, WA 98405 info@crossengineers.com Phone: (253) 759-0118 Job Number: 22-171

## FIXTURE SCHEDULE

08/11/2023

BID SET

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POWER/SIGNAL FLOOR PLAN - LEVEL 1

## **GENERAL NOTES:**

- 1. ELECTRICAL REQUIREMENTS ARE NOT LIMITED TO ELECTRICAL DRAWINGS AND SPECIFICATIONS. THERE IS ADDITIONAL ELECTRICAL WORK REQUIRED TO BE INCLUDED IN THE BID, INDICATED ON ARCHITECTURAL AND MECHANICAL DRAWINGS. ADDITIONAL ELECTRICAL WORK REQUIRED IN THE BID IS ALSO LOCATED IN THE SPECIFICATIONS. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL AND MECHANICAL SPECIFICATIONS FOR ADDITIONAL ELECTRICAL INFORMATION AND INCLUDE COSTS FOR THIS WORK IN THE BID.
- 2. ALL CONDUIT IS INTENDED TO BE CONCEALED. CONTRACTOR SHALL PROVIDE TO ARCHITECT/OWNER SHOP DRAWINGS INDICATING ROUTING OF ANY INTENDED EXPOSED CONDUIT PRIOR TO ROUGH-IN FOR ARCHITECT/OWNERS APPROVAL. CONTRACTOR SHALL NOT START ROUGH-IN FOR CONDUIT UNTIL WRITTEN APPROVAL IS RECEIVED.
- 3. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR THE FIRE WALL SEPARATIONS. CONTRACTOR SHALL PROVIDE CAULKING, SEAL-OFFS, RATED PENETRATION BLOCK-OUTS, ETC. AS REQUIRED BY CODE TO RETAIN FIRE WALL SEPARATION RATINGS.
- CONTRACTOR SHALL INCLUDE IN THE BID ALL COSTS TO HAVE A DEPARTMENT OF LABOR AND INDUSTRIES APPROVED FIRM TO EVALUATE THE INSTALLATION, SAFETY, AND COMPLIANCE WITH CODE AS REQUIRED PER W.A.C. 296-46B-901. FOR ANY EQUIPMENT SPECIFIED OR FURNISHED THAT IS NOT UL LABELED.
- 5. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-(800)-424-5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR MAINTAINING ALL LOCATE MARKS ONCE THE UTILITIES HAVE BEEN LOCATED.
- 6. ALL WALL PENETRATIONS SHALL BE NEATLY CORE-DRILLED, CAULKED AND SEALED TO MAINTAIN FIRE, AND WATERPROOF RATING. PATCH, REPAIR, AND PAINT TO MATCH EXISTING.
- 7. CONTRACTOR SHALL PROVIDE TRENCHED 1"C-FIRE ALARM CONDUCTORS AND CONNECT THE POST INDICATOR VALVE TO THE FIRE ALARM SYSTEM FOR MONITORING. SEE CIVIL AND MECHANICAL DRAWINGS FOR LOCATIONS.
- 8. THE EXISTING ACCESS CONTROL SYSTEM IS AN EXISTING KANTECH SYSTEM AND EXISTING CCTV SYSTEM IS A EXACQ SYSTEM. ALL NEW DEVICES SHALL BE COMPATIBLE WITH THE EXISTING CONTROL SYSTEM. CONTRACTOR SHALL CONTACT JAMES PIPPENGER AT JOHNSON CONTROLS FOR BIDS (425.534.8989) ON NEW VIDEO INTERCOM DEVICES, ACCESS CONTROL DEVICES AND CCTV.

## **ELECTRICAL NOTES:**

- CEILING MOUNTED OCCUPANCY SENSOR SHALL TURN OFF CONTROLLED RECEPTACLE AFTER 20 MINUTES OF NO OCCUPANT DETECTION PER WASHINGTON STATE ENERGY CODE SECTION 405.10.
- 2 CONTRACTOR SHALL PROVIDE A NEW PANEL LOCK ON EXISTING PANEL AND PROVIDE THE OWNER WITH NEW KEYS.
- 3 EXISTING CAMERA LOCATION. CONTRACTOR SHALL REPOSITION/AIM PER OWNER DIRECTION.
- MOUNT NEW DOOR CONTROLLER ABOVE T-BAR CEILING AT THIS LOCATION FOR |4>DOORS 105, 106, 110 AND 113.
- 5 CONTRACTOR SHALL REMOVE EXISTING RECEPTACLE, PROVIDE NEW 3/4"C-#12 CU CONDUCTORS AND RECONNECT EXISTING RECEPTACLES TO REMAIN.
- 6 CONTRACTOR SHALL PROVIDE RETRACTABLE CORD REEL WITH (2) 120V, 20A DUPLEX RECEPTACLES. REELCRAFT #L4525-123-7A OR APPROVED EQUAL.
- $\overline{7}$ CONTRACTOR SHALL X-RAY EXISTING SLAB AND PROVIDE CORE PER MANUFACTURER'S REQUIREMENTS. CONTACTOR SHALL COORDINATE EXACT LOCATIONS WITH OWNER / ARCHITECT PRIOR TO CORING.
- MOUNT NEW DOOR CONTROLLER ABOVE T-BAR CEILING AT THIS LOCATION FOR DOORS 104.
- ROUTE ALL NEW DATA CABLING THROUGH I.T. CLOSET TO SECOND FLOOR AND 9> TERMINATE AT NEW PATCH PANELS IDENTIFIED ON E3.02.
- UNDER CARPET LEGRAND CONNECTRAC FLEX SYSTEM POWER HUB LOCATION. CONTACTOR SHALL COORDINATE EXACT LOCATIONS WITH OWNER / ARCHITECT PRIOR TO ROUGH-IN.
- MOUNT NEW DOOR CONTROLLER "DRC" IN CABINET, LOCATED IN SOUTHEAST CORNER |11 >OF LEVEL ONE TO SERVE DOORS 115 AND STAIR DOOR LEADING TO CARNEGIE HALL.

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159 western avenue west, suite 486 seattle, washington 98119 office 206 775-8668

www.buildingwork.design

## PROJECT **Tacoma Public Library Main Branch Renovation**

LOCATION 1102 Tacoma Ave S **Tacoma WA 98402** 

PREPARED FOR **Tacoma Public** Library

9/18/23

ARCHITECT STAMP

REVISION





CROSS ENGINEERS, INC 923 MLK Jr. Way Tacoma, WA 98405 nfo@crossengineers.com Phone: (253) 759-0118 Job Number: 22-171

POWER/SIGNAL FLOOR PLAN -LEVEL 1

08/11/2023

BID SET

E3.01 © 2023 BUILDINGWORK, LLC



SCALE: 1/8"=1'-0"



## **GENERAL NOTES:**

- 1. ELECTRICAL REQUIREMENTS ARE NOT LIMITED TO ELECTRICAL DRAWINGS AND SPECIFICATIONS. THERE IS ADDITIONAL ELECTRICAL WORK REQUIRED TO BE INCLUDED IN THE BID, INDICATED ON ARCHITECTURAL AND MECHANICAL DRAWINGS. ADDITIONAL ELECTRICAL WORK REQUIRED IN THE BID IS ALSO LOCATED IN THE SPECIFICATIONS. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL AND MECHANICAL SPECIFICATIONS FOR ADDITIONAL ELECTRICAL INFORMATION AND INCLUDE COSTS FOR THIS WORK IN THE BID.
- 2. ALL CONDUIT IS INTENDED TO BE CONCEALED. CONTRACTOR SHALL PROVIDE TO ARCHITECT/OWNER SHOP DRAWINGS INDICATING ROUTING OF ANY INTENDED EXPOSED CONDUIT PRIOR TO ROUGH-IN FOR ARCHITECT/OWNERS APPROVAL. CONTRACTOR SHALL NOT START ROUGH-IN FOR CONDUIT UNTIL WRITTEN APPROVAL IS RECEIVED.
- 3. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR THE FIRE WALL SEPARATIONS. CONTRACTOR SHALL PROVIDE CAULKING, SEAL-OFFS, RATED PENETRATION BLOCK-OUTS, ETC. AS REQUIRED BY CODE TO RETAIN FIRE WALL SEPARATION RATINGS.
- CONTRACTOR SHALL INCLUDE IN THE BID ALL COSTS TO HAVE A DEPARTMENT OF LABOR AND INDUSTRIES APPROVED FIRM TO EVALUATE THE INSTALLATION, SAFETY, AND COMPLIANCE WITH CODE AS REQUIRED PER W.A.C. 296-46B-901. FOR ANY EQUIPMENT SPECIFIED OR FURNISHED THAT IS NOT UL LABELED.
- 5. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-(800)-424-5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR MAINTAINING ALL LOCATE MARKS ONCE THE UTILITIES HAVE BEEN LOCATED.
- ALL WALL PENETRATIONS SHALL BE NEATLY CORE-DRILLED, CAULKED AND SEALED TO MAINTAIN FIRE, AND WATERPROOF RATING. PATCH, REPAIR, AND PAINT TO MATCH EXISTING.
- 7. CONTRACTOR SHALL PROVIDE TRENCHED 1"C-FIRE ALARM CONDUCTORS AND CONNECT THE POST INDICATOR VALVE TO THE FIRE ALARM SYSTEM FOR MONITORING. SEE CIVIL AND MECHANICAL DRAWINGS FOR LOCATIONS.
- 8. THE EXISTING ACCESS CONTROL SYSTEM IS AN EXISTING KANTECH SYSTEM AND EXISTING CCTV SYSTEM IS A EXACQ SYSTEM. ALL NEW DEVICES SHALL BE COMPATIBLE WITH THE EXISTING CONTROL SYSTEM. CONTRACTOR SHALL CONTACT JAMES PIPPENGER AT JOHNSON CONTROLS FOR BIDS (425.534.8989) ON NEW VIDEO INTERCOM DEVICES, ACCESS CONTROL DEVICES AND CCTV.

## **ELECTRICAL NOTES:**

- CEILING MOUNTED OCCUPANCY SENSOR SHALL TURN OFF CONTROLLED RECEPTACLE AFTER 20 MINUTES OF NO OCCUPANT DETECTION PER WASHINGTON STATE ENERGY CODE SECTION 405.10.
- CONTRACTOR SHALL PROVIDE A NEW PANEL LOCK ON EXISTING PANEL AND PROVIDE THE OWNER WITH NEW KEYS.
- EXISTING CAMERA LOCATION. CONTRACTOR SHALL REPOSITION/AIM PER OWNER DIRECTION.
- MOUNT NEW DOOR CONTROLLER ABOVE T-BAR CEILING AT THIS LOCATION FOR 4 DOORS 209, 220, 225, AND 226.
- CONTRACTOR SHALL REMOVE EXISTING RECEPTACLE, PROVIDE NEW 3/4"C-#12  $|_{5}$ CU CONDUCTORS AND RECONNECT EXISTING RECEPTACLES TO REMAIN.
- CONTRACTOR SHALL PAINT (SAFETY YELLOW) ON FLOOR FOR CODE REQUIRED CLEARSPACE PER NATIONAL ELECTRICAL CODE.
- 7 CONTRACTOR SHALL PROVIDE RETRACTABLE CORD REEL WITH (2) 120V, 20A DUPLEX RECEPTACLES. REELCRAFT #L4525-123-7A OR APPROVED EQUAL.
- 8 CONTRACTOR SHALL X-RAY EXISTING SLAB AND PROVIDE CORE PER MANUFACTURER'S REQUIREMENTS. CONTACTOR SHALL COORDINATE EXACT LOCATIONS WITH OWNER / ARCHITECT PRIOR TO CORING.
- 9 CONTRACTOR SHALL PROVIDE NEW WALL MOUNTED DATA RACK (CHATSWORTH #15320-24X OR EQUAL) WITH (5) 48 PORT PATCH PANELS (ICC #ICMPP48CP6 OR EQUAL) AND TERMINATE ALL CAT 6 CABLES FOR OWNER'S I.T. VENDER'S USE.

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PROJECT **Tacoma Public Library** Main Branch Renovation

LOCATION 1102 Tacoma Ave S **Tacoma WA 98402** 

PREPARED FOR **Tacoma Public** Library

9/18/23

ARCHITECT STAMP

REVISION





CROSS ENGINEERS, INC 923 MLK Jr. Way Tacoma, WA 98405 nfo@crossengineers.com Phone: (253) 759-0118 Job Number: 22-171

POWER/SIGNAL FLOOR PLAN -LEVEL 2

08/11/2023

BID SET

E3.02 © 2023 BUILDINGWORK, LLC



POWER/SIGNAL FLOOR PLAN - LEVEL 3 SCALE: 1/8"=1'-0"

## **GENERAL NOTES:**

- 1. ELECTRICAL REQUIREMENTS ARE NOT LIMITED TO ELECTRICAL DRAWINGS AND SPECIFICATIONS. THERE IS ADDITIONAL ELECTRICAL WORK REQUIRED TO BE INCLUDED IN THE BID, INDICATED ON ARCHITECTURAL AND MECHANICAL DRAWINGS. ADDITIONAL ELECTRICAL WORK REQUIRED IN THE BID IS ALSO LOCATED IN THE SPECIFICATIONS. CONTRACTOR SHALL REVIEW ALL ARCHITECTURAL AND MECHANICAL SPECIFICATIONS FOR ADDITIONAL ELECTRICAL INFORMATION AND INCLUDE COSTS FOR THIS WORK IN THE BID.
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- 3. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR THE FIRE WALL SEPARATIONS. CONTRACTOR SHALL PROVIDE CAULKING, SEAL-OFFS, RATED PENETRATION BLOCK-OUTS, ETC. AS REQUIRED BY CODE TO RETAIN FIRE WALL SEPARATION RATINGS.
- CONTRACTOR SHALL INCLUDE IN THE BID ALL COSTS TO HAVE A DEPARTMENT 4. OF LABOR AND INDUSTRIES APPROVED FIRM TO EVALUATE THE INSTALLATION, SAFETY, AND COMPLIANCE WITH CODE AS REQUIRED PER W.A.C. 296-46B-901. FOR ANY EQUIPMENT SPECIFIED OR FURNISHED THAT IS NOT UL LABELED.
- 5. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-(800)-424-5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR MAINTAINING ALL LOCATE MARKS ONCE THE UTILITIES HAVE BEEN LOCATED.
- 6. ALL WALL PENETRATIONS SHALL BE NEATLY CORE-DRILLED, CAULKED AND SEALED TO MAINTAIN FIRE, AND WATERPROOF RATING. PATCH, REPAIR, AND PAINT TO MATCH EXISTING.
- 7. CONTRACTOR SHALL PROVIDE TRENCHED 1"C-FIRE ALARM CONDUCTORS AND CONNECT THE POST INDICATOR VALVE TO THE FIRE ALARM SYSTEM FOR MONITORING. SEE CIVIL AND MECHANICAL DRAWINGS FOR LOCATIONS.
- 8. THE EXISTING ACCESS CONTROL SYSTEM IS AN EXISTING KANTECH SYSTEM AND EXISTING CCTV SYSTEM IS A EXACQ SYSTEM. ALL NEW DEVICES SHALL BE COMPATIBLE WITH THE EXISTING CONTROL SYSTEM. CONTRACTOR SHALL CONTACT JAMES PIPPENGER AT JOHNSON CONTROLS FOR BIDS (425.534.8989) ON NEW VIDEO INTERCOM DEVICES, ACCESS CONTROL DEVICES AND CCTV.

## **ELECTRICAL NOTES:**

- CONTRACTOR SHALL PROVIDE NEW AIPHONE #IPW-POE8 POE SWITCH WITH MOUNTING HARDWARE FOR NEW VIDEO INTERCOM SYSTEM AND AXIS #T8505 POE SWITCH FOR NEW CCTV CAMERAS.
- 2 MOUNT NEW DOOR CONTROLLER ABOVE T-BAR CEILING AT THIS LOCATION FOR **DOORS 301**



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PROJECT **Tacoma Public Library Main Branch Renovation** 

LOCATION 1102 Tacoma Ave S Tacoma WA 98402

PREPARED FOR **Tacoma Public** Library

DATE

9/18/23

Addendum

ARCHITECT STAMP

REVISION





CROSS ENGINEERS, INC 923 MLK Jr. Way Tacoma, WA 98405 fo@crossengineers.com Phone: (253) 759-0118 Job Number: 22-17

## POWER/SIGNAL FLOOR PLAN -LEVEL 3

08/11/2023

BID SET

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		MECHAN	ICAL E		ENT E	LECTR	ICAL CO	ONNE	CTION S	CHEDULE		
ITEM	DESCRIPTION	LOCATION	VOLTS	PHASE	HP KW	MIN. CIRCUIT	DISC.	FUSES	MAGNETIC STARTER	FEEDER		NOTES
$\left( \begin{array}{c} BC \\ 1 \end{array} \right)$	VRF INDOOR HEAT PUMP	LEVEL 1	208	1		.80	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	2D-35	}
$\left( \begin{array}{c} BC \\ 2 \end{array} \right)$	VRF INDOOR HEAT PUMP	LEVEL 2	208	1	-	1.10	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	2D-35	}
CP 1	CIRC. PUMP	BASEMENT SEE MECH.	120		1/3	7.2 FLA				3/4"C-2#12 CU & 1#12 CU GRD	1D-36	
CU 1	CONDENSING UNIT	ROOF SEE MECH.	208	3		41.0 FLA	3P60 NEMA 3R	60		1"C-4#6 CU & 1#10 CU GRD	2B-29	2
ERV 110	ENERGY RECOV. VENTILATOR	SEE MECH.	208		.5	6.0	2P30	15		3/4"C-3#10 CU & 1#10 CU GRD	1D-39	
ERV 210	ENERGY RECOV. VENTILATOR	SEE MECH.	208	1	1.0	9.9	2P30	15		3/4"C-3#10 CU & 1#10 CU GRD	2D-39	
EF 110	EXHAUST FAN	SEE MECH.	120	1	1/6 -	4.4 FLA		-		3/4"C-2#12 CU & 1#12 CU GRD	1D-34	<u>}</u>
209	FAN	SEE MECH.	120		.5	9.8 FLA		-	-	3/4"C-2#12 CU & 1#12 CU GRD	2D-2	
EF 230	EXHAUST FAN	SEE MECH.	120		.5	9.8 FLA				3/4"C-2#12 CU & 1#12 CU GRD	2D-4	
HP 105	VRF INDOOR HEAT PUMP	OFFICE 105	208	1	- /-	.24	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	1D-28	3
HP 106	VRF INDOOR HEAT PUMP	OFFICE 106	208	1	- /-	.24	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	1D-28	3
HP 110A	VRF INDOOR HEAT PUMP	MAKER SPACE 110	208	1	- /-	.30	2P30	10		3/4"C-3#10 CU & 1#10 CU GRD	1D-28	
HP 110B	VRF INDOOR HEAT PUMP	MAKER SPACE 110	208	1	- /-	.30	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	1D-28	3
HP 111	VRF INDOOR HEAT PUMP	MEMORY LAB 111	208	1	- /-	.24	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	1D-28	3
HP 112	VRF INDOOR HEAT PUMP	CONTROL 112	208	1	- /-	.24	2P30	10		3/4"C-3#10 CU & 1#10 CU GRD	1D-28	3
HP 114	VRF INDOOR HEAT PUMP	STUDIO 114	208	1	- /-	1.75	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	1D-28	3
HP 222A	VRF INDOOR HEAT PUMP	MEETING 222	208	1	- /-	.30	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	2D-35	3
HP 222B	VRF INDOOR HEAT PUMP	MEETING 222	208	1	- /-	.30	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	2D-35	3
HP 223	VRF INDOOR HEAT PUMP	MEETING 222	208	1	- /-	.50	2P30	10	-	3/4"C-3#10 CU & 1#10 CU GRD	2D-35	3
HP 224	VRF INDOOR HEAT PUMP	MEETING 222	208	1		.50	2P30	10		3/4"C-3#10 CU & 1#10 CU GRD	2D-35	3
SP 1A	SUMP PUMP	BASEMENT SEE MECH.	208	3	3 -	11.0 FLA	3P30	20	-	3/4"C-4#10 CU & 1#10 CU GRD	1D-38	
SP 1B	GRINDER PUMP	BASEMENT SEE MECH.	208	3	3 -	11.0 FLA	3P30	20	-	3/4"C-4#10 CU & 1#10 CU GRD	1D-38	2
WH 100	WATER HEATER	BASEMENT SEE MECH.	208	3	- 5	13.8 FLA	3P30	20	-	3/4"C-4#10 CU & 1#10 CU GRD	1A-32	2

## **MECHANICAL EQUIPMENT CONNECTION SCHEDULES NOTES:**

PROVIDE 20A MOTOR RATED TOGGLE SWITCH



5.242

1

 $|1\rangle$ 

## **SWITCHBOARD MDP / D1 LOAD CALCULATIONS:**

191.0 KW

212.2 KVA

/ .90 PF

+ 53.1 KVA

12 MONTH PEAK DEMAND LOAD

DIVIDED BY .90 POWER FACTOR

(JULY 2022)

SUB-TOTAL

+25% PER NEC

## SWITCHBOARD D2 LOAD CALCULATIONS:

48.2 KVA

30 DAY METERED LOAD (1/19/23 - 4/4/23)

+25% PER NEC

SUB-TOTAL

+NEW LOAD

TOTAL ON D2

## **EXISTING POWER RISER DIAGRAM**

NOT TO SCALE

## **ELECTRICAL NOTES:**

CONTRACTOR SHALL RELOCATE EXISTING PANEL 2B PER SHEET E3.02. CONTRACTOR SHALL REMOVE EXISTING CONDUCTORS BACK TO MDP IN BASEMENT, RECONFIGURE EXISTING 2 1/2" CONDUIT TO NEW PANEL LOCATION AND PROVIDE NEW CONDUCTORS AS INDICATED ON RISER DIAGRAM.

## **CONDUIT AND CONDUCTOR SCHEDULE:**

- (E)(6)4"C-(4)#600 KCM CU EACH
- (E)(3)4"C-(4)#400 KCM CU & (1)#2/0 CU GRD EACH
- (E)(2)4"C-(4)#600 KCM CU & (1)#1/0 CU GRD EACH
- (E)4"C-(4)#600 KCM CU & (1)#3 CU GRD
- <u>/</u>5<u>(E)2-1/2"C-(4)#3/0 CU & (1)#6 CU GRD</u>
- <u>6</u> (E)1-1/2"C-(4)#2 CU & (1)#8 CU GRD
- <u>∕</u><sup>7</sup> NEW 2-1/2"C-(4)#3/0 CU & (1)#6 CU GRD
- 8 NEW 1-1/2"C-(4)#2 CU & (1)#8 CU GRD

## LEGEND:

NEW(N) EXISTING(E)



D3 - DISTRIBUTION SWITCHBOARD - 800A, 120/208V, 3PH, 100KAIC



architecture design preservation

office 206 775-8668

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www.buildingwork.design

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## POWER RISER DIAGRAM

08/11/2023

BID SET

E5.00

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EXIS	STING (SO	QUARE D NQOD)								
FLUS	SH MOUI	NTING	PAI	NEL	S	CH	IEDl	JLE		
NO.	1A	LOCATION: LEVEL 1 SERVING: LEVEL 1							120/208 VOLTS 3PHASE 200 AMPS WITH MAII	4WIRE N LUGS
CKT NO.	LO	AD DESCRIPTION	KVA	TRIP AMPS			TRIP AMPS	KVA	LOAD DESCRIPTION	CKT NO.
1	NEW L	1.03	20 -	-	$\neg$	~ 20		(E)LIGHTING- SPARE	2	
3			1.43		$\rightarrow$		~		(E)LIGHTING- SPARE	4
5			1.30		$\rightarrow$	•	~		(E)LIGHTING- SPARE	6
7			1.25			$\vdash$	~		SPARE	8
9			1.40		$ \rightarrow $		~		(E)LIGHTING- SPARE	10
11			1.38		$\rightarrow$	+	~	.36	(E)RECEPTACLES	12
13	NEW LI	GHTING	.33			$\vdash$	~	.36	(E)RECEPTACLES	14
15	<del>(E)LIGF</del>	TING- SPARE			$\neg$		~	.18	(E)RECEPTACLES	16
17					$\rightarrow$	-	~		(E)LIGHTING- SPARE	18
19					$\rightarrow$	$\vdash$	~	.18	(E)RECEPTACLES	20
21					$\rightarrow$		~	.36	(E)IDF RECEPTACLES	22
23					$\rightarrow$	-	~		(E)LIGHTING SPARE	24
25					~	$\vdash$	~		SPARE	26
27					$\neg$		~20	.60	(E)TV'S - TEEN	28
29	1				$\rightarrow$	-	~		SPACE	30
31	<del>(E)LIGF</del>	TING- SPARE			$\rightarrow$	+1	~30/	5.00	WH-100	32
33	SPACE				$\neg +$	+1	`_/_			34
35	SPACE				$\rightarrow$	┝┥┸	· <u>/ 3</u>			36
37	(E)PAN	EL 1B	14.70		₽	+1	~ <u>100/</u>	31.40	NEW PANEL 1D	38
39					$\uparrow \vdash$	┝┼┨	`			40
41				/ 3 -	ΥL		· <b>/</b> 3			42
REM	IARKS:					СС	DNNEC	TED LO	AD: KVA	AMPS
						DE	EMAND	LOAD:	72.0 KVA 20	0 AMPS

\* PROVIDE NEW CIRCUIT BREAKER, SIZE AS SHOWN.

## PANEL 1A LOAD CALCULATION

30 DAY METERED LOAD (1/19/2023-4/4/2023)

= 22.29 KVA (61.9A)

= 72.0 KVA (200 AMPS)

+ 5.57 KVA

= 27.86 KVA

+ 44.12 KVA

@208V, 3PH

SUB-TOTAL

+ 25% PER NEC

+ NEW LOAD

TOTAL ON PANEL 1A

(RATED 200A)

NEW FLUSH MOUNTING PANEL SCHEDULE LOCATION: LEVEL 1 SERVING: LEVEL 1 120/208 VOLTS 3PHASE 4WIRE 1D 100 AMPS WITH MAIN LUGS KVA TRIP AMPS KVA CKT LOAD DESCRIPTION L CK LOAD DESCRIPTION NO. RECEPTACLES RECEPTACLES "CONTROL" 72 RECEPTACLES 1.08  $\rightarrow + + \frown$ 1.08  $\rightarrow$ "CONTROL" RECEPTACLES RECEPTACLES "CONTROL" FLOORBOXES "CONTROL" 1.08 "CONTROL" 1.08 "CONTROL" 1.26  $\mapsto$ 20 .36 RECERTACLES 26 30 .69 HP-105,106,110A,110B,111, 28 25727FLOORBOXES29RECEPTACLES31RECEPTACLES33RECEPTACLES35SPARE37SPARE39ERV-110 112,114 SPARE 53 EF-110 86 CP-1 7.92 SP 1ASP 1B 1.25 1\ 42 REMARKS: 31.4 KVA 87 AMPS CONNECTED LOAD: DEMAND LOAD: 27.4 KVA 76 AMPS

PROVIDE HANDLE TIES FOR ALL MULTI-CIRCUIT HOMERUNS SHARING A NEUTRAL PER THE NATIONAL ELECTRIC CODE ARTICLE 210.4 MULTIWIRE BRANCH CIRCUITS, PART (B) DISCONNECTING MEANS. DRAWINGS ARE DIAGRAMMATIC. WHERE THE CONTRACTOR MODIFIES THE CIRCUITING, THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL NEUTRAL PER CIRCUIT, MULTI-POLE CIRCUIT BREAKERS, OR CIRCUIT BREAKER HANDLE TIE TO MEET THE NEC ARTICLE. ALL COSTS ASSOCIATED WITH MODIFICATIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

	PANEL 1	D LO	AD CALCULA	ATIONS		
SERVICE	KVA LOAD		FACTOR	NEC REF.	DEMA	ND LOAD
LIGHTING RECEPTS TO 10KW RECEPTS OVER 10KW MOTORS (LARGEST) MOTORS KITCHEN EQUIP. WELDERS AIR CONDITIONING ELECTRIC HEAT MISCELLANEOUS	10.00 10.16 3.96 7.32 - - -	× × × × × × × × × × × × × × × × × × ×	1.25 1.00 0.50 1.25 1.00 1.00 1.00 1.00 1.00 1.00	220.19(A)(1) 220.44 220.44 430.24 430.24 220.56 630.11(B) 220.50 220.51		10.00 5.08 4.95 7.32

TOTAL CONNECTED 31.4 KVA (87 AMPS) TOTAL DEMAND 27.4 KVA (76 AMPS)

EXIS	TING (SO	QUARE D NQOD)								
=LUS 10,00	SH MOUN 00 AIC	ITING	PAI	NEL SO	CHED	ULE				
10.	1B	LOCATION: LEVEL 1 SERVING: LEVEL 1					120/208 100	3 VOLTS 3PHAS AMPS WITH M	SE 4W AIN LU	IRE IGS
CKT NO.	LO	AD DESCRIPTION	KVA	TRIP 🖾 AMPS	303 TRIP AMPS	KVA	LOAE	DESCRIPTION	1	CKT NO.
1	(E)DOO	R OPERATOR	.10	20	20	.90	(E)RECEF	PTACLES		2
3			.10			.72				4
5			.10		• <u> </u>	.72				6
7	(E)DOO	R OPERATOR	.10			.54				8
9	(E)RECI	EPTACLES	.54			.90				10
11			.54		• <u> </u>	.90				12
13			.72			.72				14
15			.72			.72				16
17			.36		• <u> </u>	.72				18
19			.90			.54				20
21			.36		20	.54	(E)RECEF	PTACLES		22
23			.36		- 15	.65	(E)RF-G			24
25	(E)RECI	EPTACLES	.72		20	.36	(E)RECEF	PTACLES		26
27	(E)HVA	0	.50		20		SPARE			28
29	SPARE			20 ~	20		SPARE			30
REM	IARKS:	•			CONNEC	TED LO	AD: 1	4.7 KVA	41 A	MPS
					DEMANE	) LOAD:	1	3.3 KVA	37 A	MPS

PROVIDE HANDLE TIES FOR ALL MULTI-CIRCUIT HOMERUNS SHARING A NEUTRAL PER THE NATIONAL ELECTRIC CODE ARTICLE 210.4 MULTIWIRE BRANCH CIRCUITS, PART (B) DISCONNECTING MEANS. DRAWINGS ARE DIAGRAMMATIC. WHERE THE CONTRACTOR MODIFIES THE CIRCUITING, THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL NEUTRAL PER CIRCUIT, MULTI-POLE CIRCUIT BREAKERS, OR CIRCUIT BREAKER HANDLE TIE TO MEET THE NEC ARTICLE. ALL COSTS ASSOCIATED WITH MODIFICATIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

	PANEL 1	B LO	AD CALCULA	TIONS		
SERVICE	KVA LOAD		FACTOR	NEC REF.	DEM.	AND LOAD
LIGHTING RECEPTS TO 10KW RECEPTS OVER 10KW MOTORS (LARGEST) MOTORS KITCHEN EQUIP. WELDERS AIR CONDITIONING ELECTRIC HEAT MISCELLANEOUS	10.00 3.14 .65 - - .90	X	1.25 1.00 0.50 1.25 1.00 1.00 1.00 1.00 1.00 1.00	220.19(A)(1) 220.44 220.44 430.24 430.24 220.56 630.11(B) 220.50 220.51		10.00 1.57 .81 - - - .90
TOTAL CONNECTED	14.7 KVA (41 AMPS)			TOTAL D	EMAND	13.3 KVA (37 AMPS)

## EXISTING (SQUARE D NQOD)

=LUS 10,00	SH MOUI 00 AIC	NTING	PAI	NEL SO	CHEDI	JLE			
10.	2A	LOCATION: LEVEL 2 SERVING: LEVEL 2					120/208 VC 200 AM	DLTS 3PHAS PS WITH MA	SE 4WIRE
CKT NO.	LO	AD DESCRIPTION	KVA	TRIP 🖾 AMPS	TRIP AMPS	KVA	LOAD DE	SCRIPTION	CKT NO.
1	NEW LI	GHTING	1.26	20	<u> </u>		(E)LIGHTING	SPARE	2
3	NEW LI	GHTING	1.17						4
5	NEW LI	GHTING	1.28	$\square$			•	•	6
7	(E)LIGH	TING SPARE			20		E)LIGHTING	SPARE	8
9							SPACE		10
11					20		(E)RECEPTAC	CLES	12
13									14
15									16
17									18
19									20
21									22
23									24
25									26
27	1	<b>*</b>							28
29	(E)LICH	<del>TING</del> SPARE		20			<b>1</b>		30
31	SPACE								32
33	SPACE							ITROLS	34
35	SPACE		40.00				SPARE		36
37	NEW P/	ANEL 2D	19.00	100/					38
39									40
41	-			/ 3 - ~	<u> </u>	L	SPARE		42
REM	IARKS:					TED LC	DAD:	KVA	AMPS
					DEMAND	LOAD:	41.7	KVA	116 AMPS

\* PROVIDE NEW CIRCUIT BREAKER, SIZE AS SHOWN.

## PANEL 2A LOAD CALCULATION

30 DAY METERED LOAD (1/19/2023-4/4/2023)	= 15.19 KVA (42.2A)
+ 25% PER NEC	+ 3.80 KVA
SUB-TOTAL	= 18.99 KVA
+ NEW LOAD	+ 22.74 KVA
TOTAL ON PANEL 2A (RATED 200A)	= 41.7 KVA (116 AMPS) @208V, 3PH

EXIS	TING (SC	QUARE D NQOD)									
FLU: 10,0	SH MOUN 00 AIC	ITING	PA	NEL S	CHI	EDL	JLE				
NO.	1C	LOCATION: LEVEL 1 SERVING: LEVEL 1						120/208 100	3 VOLTS 3PHASE AMPS WITH MA	E 4WI IN LU	IRE JGS
CKT NO.	LO	AD DESCRIPTION	KVA	TRIP 🖾 AMPS		TRIP Amps	KVA	LOAI	DESCRIPTION		CKT NO.
1	SPARE			20	$\vdash \frown$	20	.36	(E)RECEF	PTACLES		2
3	(E)REC	EPTACLES	.72	$\Box \Box \uparrow \uparrow$	+		.36				4
5			.72	$\square$	$  \bullet \frown$		.72				6
7			.54		$H^{-}$		.90				8
9			.54	$\square$	$+^-$		.54				10
11			.72	$\square$			.72				12
13			.36	<b>─</b> ~+	$H^{-}$		.54				14
15			.36	$\square$	+		.54				16
17			.90				.72				18
19			.72	<u> </u>	$\square$	V	.72	(E)RECEF	TACLES		20
21		Y	.90		•	20	.10	(E)F.A. BO	DOSTER PANEL		22
23	(E)REC	EPTACLES	.72					SPACE			24
25	SPARE			20	$H^{-}$						26
27	SPACE			$ \longrightarrow $	•			T T			28
29	SPACE							SPACE			30
REN	ARKS:				CO	NNEC	TED LO	AD:	KVA	A	MPS
					DEN	ЛAND	LOAD:		1.3 KVA	3 A	MPS

30 DAY METERED LOA (1/19/2023-4/4/2023)
+ 25% PER NEC
TOTAL ON PANEL 1C (RATED 100A)

FL 10	USH N 0,000 A	10UNTING IC	PA	NEL S	CHED	ULE		
NC	2	B LOCATION: LEVEL 2					120/208 VOLTS 3PHAS	SE 4WIRE
		SERVING: LEVEL 2					200 AMPS WITH M	<u>AIN LUGS</u>
CI N	(T   ).	LOAD DESCRIPTION	KVA	TRIP	SISI TRIP	KVA	LOAD DESCRIPTION	CK NO
1	(E)	LAMINATOR - LEVEL 3	.60	20 ~	- 20	.72	(E)RECEPTACLES	2
3	(E)	LAMINATOR - LEVEL 3	.60	$\square$	•	.54		4
5	(E)	LAMINATOR - LEVEL 3	.60	$\square$		.54		6
7	ŚP	ARE				.72		8
9	SP	ARE			•	.72		10
1	1   (E)	RECEPTACLES - LEVEL 3	.54	20 ~		.90	•	12
1	3   SP	ARE		40/+	$H \sim \_$	.72	(E)RECEPTACLES	14
1	5			2	• <u> </u>		SPARE	16
1	7   (E)	GARAGE DOOR	1.18	20 ~		.36	(E)RECEPTACLES	18
1	9   (E)	RECEPTACLES	.36				SPARE	20
2	1   (E)	RECEPTACLES	.72		<u>+</u> 20		SPARE	22
2	3   (E)	GAS WATER HEATER	.10		- 30/	1.50	(E)COPIER	24
2	5   (E)	COPY MACHINE	.60		<u>+-^_2</u>			26
12	7-14E)	CORX-MACHINE	60	20	→30/	1	SPARE	28
* 2	9   CU	-1	14.76	60/-1	<u> </u>			30
3	1				<u> </u>	6.00	(E)WATER HEATER	32
3	3				┡┼┾∕			34
3	5 (E)	MEG-LOCK	10	20				36
3	7   SP	ARE		20	<u> </u>	8.00	OVEN	38
* 3	9   <b>OV</b>	EN	8.00	50/-1	<u>+^_∕2</u>			40
4	1			/2 🔨	<u> </u>		SPARE	42
R	EMAR	KS: .			CONNE	CTED LC	AD: KVA	AMPS
					DEMAN	D LOAD:	39.1 KVA	109 AMPS

## PANEL 2B LOAD CALCULATION

30 DAY METERED LOAD (1/19/2023-4/4/2023)	= 6.70 KVA (18.6A)
+ 25% PER NEC	+ 1.68 KVA
SUB-TOTAL	= 8.38 KVA
+ NEW LOAD	+ 30.76 KVA
TOTAL ON PANEL 2B (RATED 200A)	= 39.1 KVA (109 AMPS) @208V, 3PH

## PANEL 1C LOAD CALCULATION

DAY METERED LOAD /19/2023-4/4/2023) 25% PER NEC

= 1.00 KVA (2.8A) + 0.25 KVA = 1.25 KVA (3 AMPS)

@208V, 3PH

UARE	D	NQOD)	

\* PROVIDE NEW CIRCUIT BREAKER, SIZE AS SHOWN.

BUILDING WORK

design preservation

architecture

159 western avenue west, suite 486 seattle, washington 98119 office 206 775-8668

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PROJECT **Tacoma Public Library** Main Branch Renovation

LOCATION 1102 Tacoma Ave S Tacoma WA 98402

PREPARED FOR Tacoma Public Library

REVISION	DATE	NAME
1	9/18/23	Addendum 1
ARCHITECT ST	AMP	
	PEV.	EN L. H
R	teven B	0029060
	i CSS	VONAL EN 8/11/23
		CROSS ENGINEERS, INC
		923 MLK Jr. Way Tacoma. WA 98405
		info@crossengineers.com Phone: (253) 759-0118
		Job Number: 22-171

PANEL SCHEDULES

08/11/2023

BID SET

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NEW	1								
FLUSH MOUNTING PANEL SO					Cŀ	IEDU	JLE		
NO.	2D	LOCATION: LEVEL 2 SERVING: LEVEL 2						120/208 VOLTS 3PHASE 100 AMPS WITH MAI	4WIRE N LUGS
CKT NO.	LO	AD DESCRIPTION	KVA	TRIP AMPS	90	TRIP AMPS	KVA	LOAD DESCRIPTION	CKT NO.
1	RECEP	TACLES	1.08	20	$\mathbb{H}^{\sim}$	~ 20	1.18	EF-209	2
3	RECEP	TACLES "CONTROL"	1.08		+	~	1.18	EF-230	4
5	RECEP	TACLES	1.08		$\left  \right $	~	1.00	REFRIGERATOR	6
7	RECEP	TACLES "CONTROL"	1.08		$\mathbb{H}^{\sim}$	~	.54	RECEPTACLES	8
9	RECEP	TACLES	.72		+	~	.36	RECEPTACLES	10
11	RECEP	TACLES	.72		+	~	.36	RECEPTACLES	12
13	RECEP	TACLES	.54		$\mathbb{H}^{\sim}$	~	1.00	REFRIGERATOR	14
15	RECEP	TACLES "CONTROL"	.72		+	~		SPARE	16
17	RECEP	TACLES	.54		$\left  \right $	~			18
19	RECEP	TACLES	.54		$\mathbb{H}^{\sim}$	~			20
21	FLOOR	BOXES	.36		┥┼╯	~			22
23			.36		$\left  \right $	~			24
25			.36		+	~			26
27	FLOOR	BOXES	.36		+	~			28
29	PROJE	CTOR	1.00		+	~			30
31	1 SPARE				+	~			32
33	$\sim$	$\sim\sim\sim\sim\sim$	$\sim$	2-++	+	~			34
35	HP-222/	A,222B,223,224,BC-1	.73	30/7+	+	~			36
37	BC-2			<u> </u>	+	~			38
39	ERV-21	onn	2.06	20	+	~			40
41				∕2 ┴		~ 20		SPARE	42
REM	IARKS:	•			C	CONNECTED LOAD: 18.9 KVA 53 AMP			53 AMPS
					D	EMAND	LOAD:	19.0 KVA 5	53 AMPS

PROVIDE HANDLE TIES FOR ALL MULTI-CIRCUIT HOMERUNS SHARING A NEUTRAL PER THE NATIONAL ELECTRIC CODE ARTICLE 210.4 MULTIWIRE BRANCH CIRCUITS, PART (B) DISCONNECTING MEANS. DRAWINGS ARE DIAGRAMMATIC. WHERE THE CONTRACTOR MODIFIES THE CIRCUITING, THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL NEUTRAL PER CIRCUIT, MULTI-POLE CIRCUIT BREAKERS, OR CIRCUIT BREAKER HANDLE TIE TO MEET THE NEC ARTICLE. ALL COSTS ASSOCIATED WITH MODIFICATIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

	PANEL 2	D LO	AD CALCULA	TIONS		
SERVICE	KVA LOAD		FACTOR	NEC REF.	DEM/	AND LOAD
LIGHTING RECEPTS TO 10KW RECEPTS OVER 10KW MOTORS (LARGEST) MOTORS KITCHEN EQUIP. WELDERS AIR CONDITIONING ELECTRIC HEAT MISCELLANEOUS	10.00 .40 2.06 3.11 - - 3.00	x x x x x x x x x x x x x x x x x x	1.25 1.00 0.50 1.25 1.00 1.00 1.00 1.00 1.00 1.00	220.19(A)(1) 220.44 220.44 430.24 430.24 220.56 630.11(B) 220.50 220.51		10.00 .40 2.57 3.11 - - - 3.00
TOTAL CONNECTED	18.9 KVA (53 AMPS)			TOTAL DE	MAND	19.0 KVA (53 AMPS)

NEW	1									
SUR 10,00	SURFACE MOUNTING PANEL SCHEDULE									
NO.	LOCATION: TOOL INVENTORY				120/208 VOLTS 3PHASE 4WIRE					
		SERVING: TOOL IN	VENTOF	RY		100 AMPS WITH MAIN LUGS				
CKT NO.	LOA	AD DESCRIPTION	KVA	TRIP AMPS			TRIP AMPS	KVA	LOAD DESCRIPTION	
1	RECEP	TACLES	.36		$\mathbf{A}$	+	20	.54	RECEPTACLES 2	
3			.36		∖┼┿	+	20	.54	RECEPTACLES "CONTROL" 4	
5			.36		$\mathbb{H}$	<b>↓</b>			SPACE 6	
7			.36		┝	+			8	
9			.36		∖┼♦	+			10	
11			.36		$\mathbb{H}$	<b>↓</b>			12	
13			.36		襘┤	+			14	
15			.36		$\uparrow$	<u>+</u>			16	
17			.36		$\mathbb{H}$	<b>↓</b>			18	
19			.36		襘┤	<u>+</u>			20	
21			.36		$\uparrow \uparrow$	<u>+</u>			22	
23			.18		$\mathbb{H}$	- <b>†</b>			24	
25	RECEP	IACLES	.18		♦	<u> </u>			26	
21	SPARE					1			28	
29					$\mathbb{H}$	-			30	
31						<u> </u>				
33						Ť			SPACE 34	
35					$\square$	- <b>*</b> [`-	30		SPARE 36	
31							<u> </u>			
39					ŢĹ-	30		574KE 40		
41	SPARE			20 -			<u> </u>		42	
REN	ARKS:					CONNECTED LOAD: 5.4 KVA 15 AMPS				
						DEN	MAND	LOAD:	5.4 KVA 15 AMPS	

PROVIDE HANDLE TIES FOR ALL MULTI-CIRCUIT HOMERUNS SHARING A NEUTRAL PER THE NATIONAL ELECTRIC CODE ARTICLE 210.4 MULTIWIRE BRANCH CIRCUITS, PART (B) DISCONNECTING MEANS. DRAWINGS ARE DIAGRAMMATIC. WHERE THE CONTRACTOR MODIFIES THE CIRCUITING, THE CONTRACTOR SHALL PROVIDE AN INDIVIDUAL NEUTRAL PER CIRCUIT, MULTI-POLE CIRCUIT BREAKERS, OR CIRCUIT BREAKER HANDLE TIE TO MEET THE NEC ARTICLE. ALL COSTS ASSOCIATED WITH MODIFICATIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

SERVICE

LIGHTING
RECEPTS TO
RECEPTS OV
MOTORS (LAF
MOTORS
KITCHEN EQU
WELDERS
AIR CONDITIO
ELECTRIC HE
MISCELLANE

TOTAL CO

	PANEL T	LO	AD CALCULA	TIONS		
	KVA LOAD		FACTOR	NEC REF.	DEM	AND LOAD
	- 5.40	X	1.25	220.19(A)(1)	=	-
O TOKW DVER 10KW	5.40 -	X	0.50	220.44 220.44	=	5.40
ARGEST)	-	X X	1.25 1.00	430.24 430.24	=	-
QUIP.	-	X	1.00	220.56 630.11(P)	=	-
FIONING	-	X	1.00	220.50	=	-
HEAT IEOUS	- -	X X	1.00 1.00	220.51	=	-
CONNECTED	5.4 KVA (15 AMPS)			TOTAL DE	MAND	5.4 KVA (15 AMPS)

BUILDING WORK

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159 western avenue west, suite 486

architecture design preservation

PROJECT Tacoma Public Library Main Branch Renovation

LOCATION 1102 Tacoma Ave S Tacoma WA 98402

PREPARED FOR Tacoma Public Library

REVISION	DATE	NAME
1	9/18/23	Addendum 1
ARCHITECT ST	AMP	L. $HUBWASHING29060STEREDVAL$



CROSS ENGINEERS, INC 923 MLK Jr. Way Tacoma, WA 98405 info@crossengineers.com Phone: (253) 759-0118 Job Number: 22-171

## PANEL SCHEDULES

08/11/2023

BID SET

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