Addendum 1
Annie Mattox Park Renovations
Bid No. 2020-F

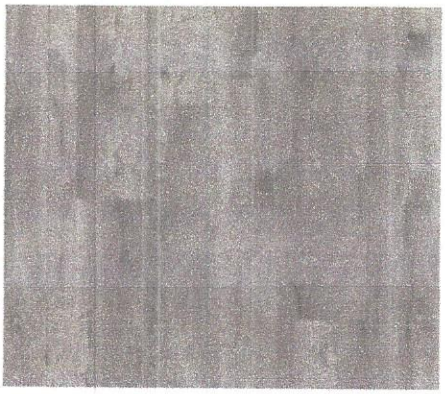
Specifications and Drawings

MARQUIS INDUSTRIES, INC.

Montana

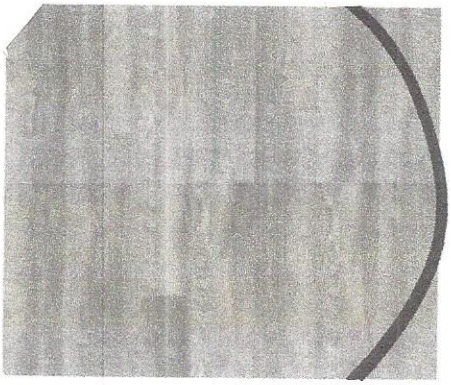
Montana utilizes some of the most popular looks in the market today. **Montana** is a commercial product that does not sacrifice style for durability. **Montana** is a 3 MM plank with a 20 MIL aluminum oxide commercial finish.

AGED CEDAR



BURNISHED PECAN

HONEY WOOD



CANYON

PHYSICAL CONSTRUCTION	
Construction	LVP
Finish	UV Cured Urethane with Aluminum Oxide
Installation Method	Direct Glue
Size	7 1/4" x 48 " Nominal
Wear Layer Thickness	20 mil
Overall Thickness	3 mm
Pieces Per Carton	10
Carton Quantity	24.16 sf
Carton Weight	30 lbs
Cartons per Pallet	60
Pallet Quantity	1,449.6 sf
Pallet Weight	1,790 lbs
Container	42,308.4 sf
WARRANTIES	
LTD. 25 Year Residential Wear Warranty	
LTD. 10 Year Commercial Warranty	
LTD. Lifetime Structure Warranty	

PHTHALATE FREE · CARB 2 · Waterproof · floor score

Specifications are based on averages from manufacturing process and may vary within normal industry tolerances. Components may be changed without notice due to raw material shortages and/or technological improvements. Such variances do not affect performance.

ArmorSeal Heavy Duty Floor Coatings

ARMORSEAL® TREAD-PLEX™

100% ACRYLIC WATER BASED FLOOR COATING

B90 SERIES

Revised: August 12, 2019

PRODUCT INFORMATION

8.12

PRODUCT DESCRIPTION

ARMORSEAL TREAD-PLEX is a general purpose, interior/exterior, 100% acrylic, low odor, waterborne floor coating. This dries rapidly to a tough, alkali resistant finish which will withstand hard wear, abrasion, grease, oils, and cleaning equipment.

- One component
- Fast dry
- Slip resistant properties
- Abrasion resistant
- Outstanding application properties
- Water clean up

PRODUCT CHARACTERISTICS

Finish:	Semi-Gloss
Color:	Wide variety of colors available
Volume Solids:	43% ± 2%, may vary by color
Weight Solids:	55% ± 2%, may vary by color
VOC (EPA Method 24):	<100 g/L; .83 lb/gal

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**3.5** (88)	**4.5** (112)
Dry mils (microns)	**1.5** (40)	**2.0** (50)
~Coverage sq ft/gal (m^2/L)	**345** (8.4)	**460** (11.3)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**688** (16.8)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 4.0 mils wet (100 microns):

	@ 55°F/13°C	@ 77°F/25°C *50% RH*	@ 100°F/38°C
To touch:	45 minutes	30 minutes	10 minutes
To recoat:	6 hours	4 hours	30 minutes
Foot traffic:	18 hours	8 hours	1 hour
Heavy traffic:	24 hours	18 hours	6 hours
To cure:	7 days	7 days	7 days

Drying time is temperature, humidity, and film thickness dependent.

Shelf Life:	24 months, unopened Store indoors at 50°F (10°C) to 100°F (38°C)
Flash Point:	>200°F (93°C), PMCC
Reducer/Clean Up:	Water

RECOMMENDED USES

For use over prepared concrete and wood floors, steps, stairwells, aisleways, or previously painted floor surfaces in sound condition.

- Laboratories
- Light assembly and production areas
- Hospitals
- Industrial/commercial office areas
- Helipads
- Not recommended for areas subject to hot tire pickup
- Meets ADA requirements for Slip Resistance for floors
- Suitable for use in USDA inspected facilities

PERFORMANCE CHARACTERISTICS

Substrate*: Concrete

Surface Preparation*: Clean, dry, sound

System Tested*:

2 cts: ArmorSeal Tread-Plex @ 4.0 mils (100 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	No more than 37 mg loss
Adhesion	ASTM D4541; ASTM D3359	702 psi (ASTM D4541); 5A (ASTM D3359)
Direct Impact Resistance, on steel	ASTM D2794	30 in. lb.
Dry Heat Resistance	ASTM D2485	150°F (66°C), intermittent at 200°F (93°C)
Flexibility	ASTM D522, 180° bend, 1/8" mandrel	Passes
Humidity Resistance	ASTM D4585, 500 hours	Rating 10 per ASTM D714 for blistering
Pencil Hardness	ASTM D3363	F
Scrub Resistance (3 mils dft)	ASTM D2486, Section 8	Passes 1000 cycles minimum
Slip Resistance, Floors	ASTM C1028**, .60 Minimum Static Coefficient of Friction	Passes wet and dry, with and without SharkGrip Additive
Wet Adhesion (one coat @ 2.0 mils dft)	TT-P-1511A, 6000 cycles	Passes

**Test method withdrawn in 2014 without replacement

continued on back

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PRODUCT INFORMATION

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RECOMMENDED SYSTEMS

	Dry Film Thickness / ct. Mils	(Microns)
Concrete Floors:		
2 cts. ArmorSeal Tread-Plex	1.5-2.0	(40-50)
Wood Floors:		
2 cts. ArmorSeal Tread-Plex	1.5-2.0	(40-50)
Previously Painted Floors in Sound Condition:		
1-2 cts. ArmorSeal Tread-Plex	1.5-2.0	(40-50)

The systems listed above are representative of the product's use, other systems may be appropriate.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Concrete Floors: SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3

Wood Floors: Clean, smooth, dust free

Do not use hydrocarbon solvents for cleaning

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	SSPC	NACE
White Metal		Sa 3	SP 5	1
Near White Metal		Sa 2.5	SP 10	2
Commercial Blast		Sa 2	SP 6	3
Brush-Off Blast		Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	SP 2	-
	Pitted & Rusted	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	SP 3	-
	Pitted & Rusted	D St 3	SP 3	-

TINTING

Do not tint package colors. Pastel and Ultradeep bases tint at 100% strength with EnviroToner, BAC, or CCE. Better performance will be achieved with Envirotoners. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

APPLICATION CONDITIONS

Temperature: 50°F (10°C) minimum, 100°F (38°C) maximum (air, surface, and material) At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging: 1 gallon (3.78L) and 5 gallon (18.9L) containers

Weight: 10.7 ± 0.2 lb/gal ; 1.3 Kg/L, may vary by color

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

ArmorSeal Heavy Duty Floor Coatings

ARMORSEAL® TREAD-PLEX™

100% ACRYLIC WATER BASED FLOOR COATING

B90 SERIES

Revised: August 12, 2019

APPLICATION BULLETIN

8.12

SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Do not use hydrocarbon solvent for cleaning.

Concrete and Masonry
For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910.

Follow the standard methods listed below when applicable:
ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

Wood
Surface must be clean, dry and sound. Remove any oils and dirt from the surface using a degreasing solvent or strong detergent. Sand to remove any loose or deteriorated surface wood and to obtain a proper surface profile. Prime with recommended primer and paint as soon as possible. No painting should be done immediately after a rain or during foggy weather. Knots and pitch streaks must be scraped, sanded and spot primed before full coat of primer is applied. All nail holes or small openings must be properly caulked.

Previously Painted Surfaces
If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, additional abrasion of the surface and/or removal of the previous coating may be necessary. Retest surface for adhesion. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	SSPC	NACE
White Metal		Sa 3	SP 5	1
Near White Metal		Sa 2.5	SP 10	2
Commercial Blast		Sa 2	SP 6	3
Brush-Off Blast		Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	SP 2	-
	Pitted & Rusted	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	SP 3	-
	Pitted & Rusted	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:	50°F (10°C) minimum, 100°F (38°C) maximum (air, surface, and material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up .....Water

Brush
Brush.....Nylon/Polyester
Reduction.....As needed up to 6% by volume

Roller
Cover .....1/4"-3/8" woven with solvent resistant core
Reduction.....As needed up to 6% by volume

If specific application equipment is not listed above, equivalent equipment may be substituted.

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Revised: August 12, 2019

APPLICATION BULLETIN

8.12

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mixing Instructions: Mix paint thoroughly with low speed power agitation prior to use. Avoid vigorous agitation. Make certain no pigment remains on bottom of can.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**3.5** (88)	**4.5** (112)
Dry mils (microns)	**1.5** (40)	**2.0** (50)
~Coverage sq ft/gal (m^2/L)	**345** (8.4)	**460** (11.3)
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**688** (16.8)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

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	@ 55°F/13°C	@ 77°F/25°C *50% RH*	@ 100°F/38°C
To touch:	45 minutes	30 minutes	10 minutes
To recoat:	6 hours	4 hours	30 minutes
Foot traffic:	18 hours	8 hours	1 hour
Heavy traffic:	24 hours	18 hours	6 hours
To cure:	7 days	7 days	7 days

Drying time is temperature, humidity, and film thickness dependent.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with soap and warm water. Clean hands and tools immediately after use with soap and warm water. After cleaning, flush spray equipment with mineral spirits to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using mineral spirits.

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PERFORMANCE TIPS

During the early stages of drying, the coating is sensitive to rain, dew, high humidity, and moisture condensation. Plan painting schedules to avoid these influences during the first 16-24 hours of curing.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

This product is not slip resistant where moisture, water, grease, or other liquids may be present.

Anti-slip additives, such as H&C SharkGrip®, may be added to the coating to provide some slip resistance. This product should not be used in place of a non-skid finish.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

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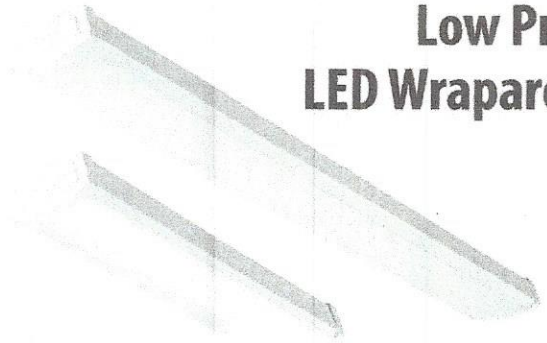
LITHONIA LIGHTING®

Catalog Number	FMLWL48 40 MVOLT
Notes	
Type	

FMLWL

Low Profile LED Wraparound

LINEAR LED



FEATURES & SPECIFICATIONS

INTENDED USE

Provides an LED lighting platform to deliver general ambient lighting for surface-mount ceiling and wall applications. Light engine delivers long life and excellent color to ensure a quality, low-maintenance light installation. Ideal for use in closets, foyers, hallways, corridors, bedrooms, offices, utility work areas, and more.

CONSTRUCTION

The LED wrap is constructed of a metal housing with decorative plastic end caps. The white polycarbonate diffuser provides even illumination and softens the appearance of the LEDs for a uniform appearance from below the ceiling.

OPTICS

MVOLT: 2' wrap produces 3,000 lumens and 4' produces 4,600 lumens, both at 50,000 hours life.

120V: 2'wrap produces 1,400 lumens and the 4' produces 2,900 lumens, both at 50,00 hours life.

Thermal formed diffuser is of highly transmissive material to minimize lamp image and provides high-angle brightness control. One piece contemporary design wrap around diffuser soften appearance for improved aesthetics.

ELECTRICAL

Long-life LEDs, coupled with a high-efficiency driver, provide extended service life. Standard input = 29/42 watts (2'/4'), 107/111 lumens per watt (2'/4'). FMLWL is rated to deliver L70 performance at 50,000 hours. Fixture operates at 120/277 volts, 60Hz. FMLWL MVOLT is 0-10V dimmable.

LISTINGS

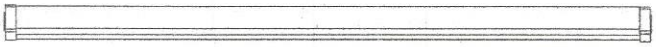
UL certified to US and Canadian standards. Listed for damp locations.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified

WARRANTY

5-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25°C.
Specifications subject to change without notice.



Specifications

	2'	4'
Width:	5-1/2 (14.0)	5-1/2 (14.0)
Length:	24-1/2 (62.2)	47-2/5 (120.4)
Depth:	2-3/5 (6.6)	2-3/5 (6.6)
Weight:	2.5 lbs (1.0 kg)	5.0 lbs (2.3 kg)

All dimensions are inches (centimeters) unless otherwise indicated.

Looking for Contractor Select readily available configurations? Click here to visit Contractor Select™ spec sheet or go to www.contractorselect.com

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative. **Example:** FMLWL 48 840 ZT MVOLT

Series			CRI		Color temperature		Dimming		Voltage	
FMLWL 24	2' LED Wrap	[Blank]	Static White	8	> 85 CRI	27	2700K[1]	[Blank]	Non-Dimming	[Blank]	120V
FMLWL 48	4' LED Wrap					30	3000K[1]	ZT	0-10V[2]	MVOLT	120-277V[2]
						35	3500K				
						40	4000K				

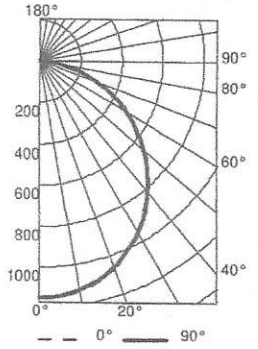
Replacement parts	
DFMLWL24	2' white polycarbonate diffuser
DFMLWL48	4' white polycarbonate diffuser

Notes
1. Non-stock color temperature is subject to 90-day lead time; minimum 50 order quantity.
2. ZT and MVOLT options must be ordered together.

FMLWL LED Linear Flush Mount

PHOTOMETRICS

FMLWL 24 840 ZT MVOLT, 3,186 delivered lumens



CP Summary

	0°	90
0°	1149	1149
5°	1142	1145
15°	1097	1099
25°	1008	1010
35°	883	890
45°	737	740
55°	567	575
65°	385	393
75°	194	206
85°	36	50
90	0	13

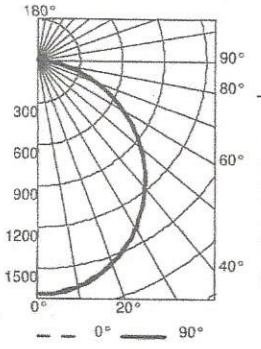
Coefficients of Utilization

	pf			20%					
	pc	80%			70%			50%	
RCR	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0		119	119	119	116	116	116	111	111	111
1		109	104	100	102	98	94	97	94	91
2		99	91	84	89	82	77	85	80	75
3		90	79	71	78	70	64	75	68	63
4		82	70	62	69	61	55	67	59	54
5		76	63	54	62	53	47	60	52	46
6		70	57	48	56	47	41	54	46	41
7		65	51	43	51	42	36	49	41	36
8		60	47	38	46	38	32	45	37	32
9		56	43	35	42	35	29	41	34	29
10		53	40	32	39	32	27	38	31	26

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	881	27.7	27.7
0° - 40°	1435	45.0	45.1
0° - 60°	2514	78.9	79.0
0° - 90°	3170	99.5	99.6
90° - 120°	9	0.3	0.3
90° - 130°	9	0.3	0.3
90° - 150°	11	0.4	0.4
90° - 180°	14	0.4	0.4
0° - 180°	3183	99.9	100.0

FMLWL 48 840 ZT MVOLT, 4,654 delivered lumens



CP Summary

	0°	90
0°	1682	1682
5°	1673	1682
15°	1602	1612
25°	1468	1476
35°	1287	1292
45°	1068	1074
55°	818	833
65°	554	572
75°	282	308
85°	50	96
90	2	38

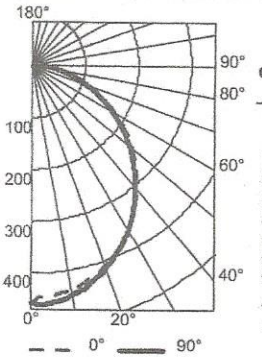
Coefficients of Utilization

	pf			20%					
	pc	80%			70%			50%	
RCR	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0		119	119	119	116	116	116	111	111	111
1		108	104	99	101	97	94	97	94	91
2		99	90	84	88	82	77	85	79	75
3		90	79	71	78	70	64	75	68	63
4		82	70	62	69	61	54	66	59	54
5		76	63	54	62	53	47	59	52	46
6		70	57	48	56	47	41	54	46	41
7		65	51	43	51	42	36	49	41	36
8		60	47	38	46	38	32	45	37	32
9		56	43	35	42	35	29	41	34	29
10		53	40	32	39	32	27	38	31	26

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	1287	27.6	27.7
0° - 40°	2091	44.9	45.0
0° - 60°	3652	78.5	78.6
0° - 90°	4615	99.2	99.3
90° - 120°	20	0.4	0.4
90° - 130°	22	0.5	0.5
90° - 150°	27	0.6	0.6
90° - 180°	33	0.7	0.7
0° - 180°	4648	99.9	100.0

FMLWL 24 840, 1,200 delivered lumens



CP Summary

	0°	90
0°	455	455
5°	444	457
15°	425	434
25°	388	390
35°	338	336
45°	278	272
55°	215	208
65°	146	142
75°	77	80
85°	16	29
90	1	14

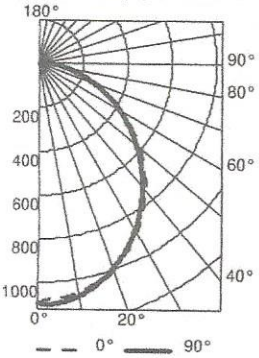
Coefficients of Utilization

	pf			20%					
	pc	80%			70%			50%	
RCR	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0		119	119	119	116	116	116	111	111	111
1		109	104	99	101	98	94	97	94	91
2		99	91	84	89	82	77	85	80	75
3		90	80	72	78	70	64	75	68	63
4		83	71	62	69	61	55	67	60	54
5		76	63	54	62	54	47	60	52	47
6		70	57	48	56	48	42	54	47	41
7		65	52	43	51	43	37	49	42	36
8		61	47	39	47	39	33	45	38	33
9		57	43	35	43	35	30	42	34	29
10		53	40	32	40	32	27	39	32	27

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	344	28.4	28.4
0° - 40°	554	45.8	45.8
0° - 60°	952	78.7	78.7
0° - 90°	1202	99.3	99.3
90° - 120°	8	0.6	0.6
90° - 130°	8	0.7	0.7
90° - 150°	8	0.7	0.7
90° - 180°	8	0.7	0.7
0° - 180°	1210	100.0	100.0

FMLWL 48 840, 2,900 delivered lumens



CP Summary

	0°	90
0°	1097	1097
5°	1078	1099
15°	1035	1042
25°	946	937
35°	817	800
45°	671	651
55°	511	497
65°	349	342
75°	189	192
85°	41	72
90	2	37

Coefficients of Utilization

	pf			20%					
	pc	80%			70%			50%	
RCR	pw	70%	50%	30%	50%	30%	10%	50%	30%	10%
0		119	119	119	116	116	116	111	111	111
1		109	104	100	101	98	94	97	94	91
2		99	91	84	89	82	77	85	80	75
3		90	80	72	78	71	64	75	69	63
4		83	71	62	69	61	55	67	60	54
5		76	63	54	62	54	47	60	53	47
6		70	57	48	56	48	42	54	47	41
7		65	52	43	51	43	37	49	42	37
8		61	47	39	47	39	33	45	38	33
9		57	44	35	43	35	30	42	35	30
10		53	40	32	40	32	27	39	32	27

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0° - 30°	830	28.5	28.5
0° - 40°	1335	45.9	45.9
0° - 60°	2292	78.8	78.8
0° - 90°	2892	99.5	99.5
90° - 120°	15	0.5	0.5
90° - 130°	15	0.5	0.5
90° - 150°	15	0.5	0.5
90° - 180°	15	0.5	0.5
0° - 180°	2907	100.0	100.0

GREE

MULTI 21+

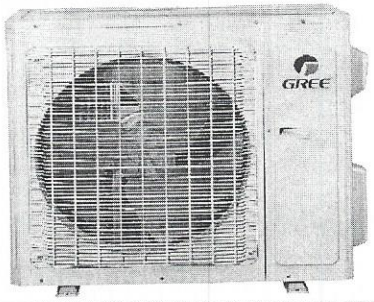
Multi-Room Ductless heat-pump systems

Submittal Data: MULTI18HP230V1CO — 18,000 BTU/H Wall Mounted Heat- Pump System

Job Name	Location Date
Purchaser	Engineer
Submitted To	For ☐ Reference ☐ Approval ☐ Construction
Unit Designation	Schedule No.

GENERAL FEATURES

- -Dual Indoor Units (2-Port)
- -EnergyStar Rated
- -G10 DC Inverter Technology
- -Quiet Operation - Both Indoor & Outdoor
- -Acrylic Resin/Anti-Corrosion Coil Protection
- -Intelligent Defrost
- -Auto Restart on Power Outages
- -Mulit-point Diagnostics
- -Limited 5 yr Parts Warranty



AHRI Certified Ref No: 9958975 (non-ducted) & 9956591 (ducted)

System Ratings

Non-Ducted Indoor	
Rated Cooling Capacity	18,000 BTUH
Cooling Capacity (min-max)	7,000-21,000 BTUH
Rated Heating Capacity	19,000 BTUH
Heating Capacity (min-max)	8,530-22,600 BTUH
SEER/EER	22.0/12.5
HSPF/COP	11.0/3.7
Ducted Indoor	
Rated Cooling Capacity	18,000 BUTH
Cooling Capacity (min-max)	7,000-21,000 BUTH
Rated Heating Capacity	19,000 BTUH
Heating Capacity (min-max)	8,530-22,600 BTUH
SEER/EER	16.0/11.5
HSPF/COP	8.5/3.1

Operating Range		
Cooling	(min-max)	0 ~ 118°F
		-18 ~ 48°C
Heating	(min-max)	-5 ~ 75°F
		-21 ~ 24°C

Power Supply	
Normal Operational Voltage	208/230 V, 1 Phase, 60 Hz
Voltage Range	187 - 253 V
Main Power Wire Size	12-2 AWG
Interconnecting Cable Wire Size	14-4 AWG
MCA	16.0 A
MOCP/Breaker Size	25 A

Outdoor Unit Data

Compressor	Type	DC Inverter Driven Rotary
	RLA	10.8
Compressor Crankcase and Base Pan Heaters included		
Fan Motor	Output Power	60 W
	FLA	0.6 A
	Air Flow (Max)	1883 CFM
Sound Pressure Level		
Cooling		56 dB(A)
Heating		56 dB(A)
Dimensions & Weights		
Unit Dimensions (LxHxD)		38.0 x 27.6 x 15.6 -in
Weight (Net/Shipping)		114.4/124.3 LBS
Min. Number of Indoor Units		1
Max. Number of Indoor Units		2

Refrigerant Piping Data

Refrigerant Type	R410A
Refrigerant Charge	56.4 oz
Additional Charge Per Line Length	0.21-oz/ft
Connection Method	Flared
Factory Charge for Total Line Length	33-ft
Total Refrigerant Pipe Length	65-ft
Max Refrigerant Piping Length to any Indoor Unit	33-ft
Min Refrigerant Piping Length to any Indoor Unit	10-ft
Max Elevation between Indoor Units	33-ft
Max Lift from Outdoor to Indoor Unit	33-ft
Max Drop from Outdoor to Indoor Unit	33-ft

5 | INVERTER | R410A | AHRI CERTIFIED | ETL

SYSTEM FEATURES	
Inverter Type	G10
Ultra Low Frequency Torque Control	YES
Power Factor Correction	YES
Compressor Type	Inverter Rotary
Refrigerant Type	R410A
Basepan With Electric Heater	YES
Compressor With Electric Heater	YES
Condenser Fan	Axial
Condenser Motor Type	DC
Condenser Motor Drive	Direct
Condenser Coil	Aluminum Fin/Copper Tube
Outdoor Fin Coating (Blue)	Acrylic Resin
Intelligent Defrosting	YES
Low Voltage Startup	YES
Memory/Power Failure Recovery	YES
Self Diagnosis	YES
Low Ambient Cooling	YES
XK19 Wired Controller Interface	YES

REMOTE CONTROLLER FUNCTIONS[1]	See individual Indoor Unit Controllers Functions

[1] *Not all Remote Controller functions are supported.*

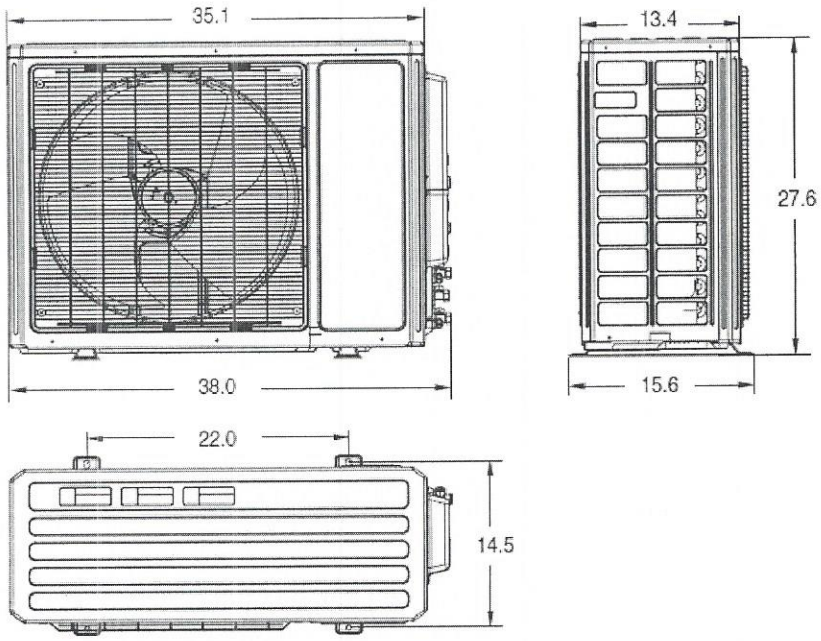
XK19 WIRED CONTROLLER FUNCTIONS[2]	
On/Off	YES
Operating Mode	YES
Fan Speed	YES
Room Setpoint	YES
Model Numbers	YES
Timer Mode	YES
Sleep Mode	YES
Turbo Mode	YES
X-Fan Mode	YES
Privacy Lock	YES

[2] *Note: Some indoor models may not support specific system features or functions.*

Units: inch

18,000 BTUH MODEL

Model # MULTI18HP230V1CO 18,000 BTUH 230V



Suction/Gas Line Port Size

Port A	3/8-in OD Flared
Port B	3/8-in OD Flared

Liquid Line Port Size

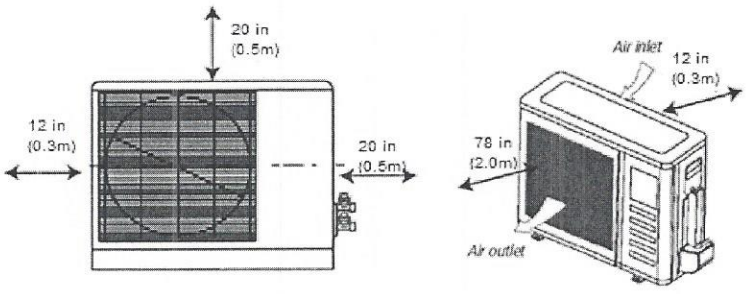
Port A	1/4-in OD Flared
Port B	1/4-in OD Flared

Factory Supplied Piping Adapters

Adapter	P/N	Qty
3/8 (F) to 1/2 (M)	6643008	2

MINIMUM SPACING REQUIREMENTS

Units: inch (m)



Notes:

1. Recommended Interconnecting Cable Type Stranded Copper Conductors THHN 600V Unshielded Wire
2. Power wiring cable size must comply with applicable national and local codes.
3. Test conditions are based on AHRI 210/240.

COOLING CAPACITY (BTUH)

Indoor Units Combinations	Rated System Capacity (BtuH)	Indoor Unit A (BtuH)	Indoor Unit B (BtuH)	Indoor Unit C (BtuH)	Indoor Unit D (BtuH)
9K	18,000	9,000	NA	NA	NA
12K	21,000	12,000	NA	NA	NA
9K+9K	18,000	9,000	9,000	NA	NA
9K+12K	18,000	9,000	12,000	NA	NA

HEATING CAPACITY (BTUH)

Indoor Units Combinations	Rated System Capacity (BtuH)	Indoor Unit A (BtuH)	Indoor Unit B (BtuH)	Indoor Unit C (BtuH)	Indoor Unit D (BtuH)
9K	19,000	9,500	NA	NA	NA
12K	19,000	13,000	NA	NA	NA
9K+9K	19,000	9,500	9,500	NA	NA
9K+12K	19,000	70,000	12,000	NA	NA

Capacity data is based on the following conditions :

Cooling Nominal Test Conditions
Indoor: 80°F DB/67°F WB
Outdoor: 95°F DB/75°F WB

Heating Nominal Test Conditions
Indoor: 70°F DB/60°F WB
Outdoor: 47°F DB/43°F W

COOLING PERFORMANCE

	Indoor Ambient Temperature											
DB / WB	70°F (21°C) 59°F (15°C)			75°F (24°C) 63°F (17°C)			80°F (27°C) 67°F (19°C)			90°F (32°C) 73°F (23°C)		
	TC (BtuH)	SC (BtuH)	Input Power (watts)	TC (BtuH)	SC (BtuH)	Input Power (watts)	TC (BtuH)	SC (BtuH)	Input Power (watts)	TC (BtuH)	SC (BtuH)	Input Power (watts)
Outdoor Ambient Temperature (DB)												
-.4°F (-18°C)	10,850	8,510	700	12,230	9,600	740	12,930	10,140	770	14,570	11,430	820
5°F (-15°C)	11,120	8,720	700	12,550	9,840	750	13,420	10,530	770	14,940	11,720	820
14°F (-10°C)	11,480	9,010	720	12,950	10,160	760	13,690	10,740	790	15,430	12,100	850
23°F (-5°C)	12,580	9,870	720	14,330	11,240	760	15,420	12,090	790	16,960	13,300	840
32°F (0°C)	13,226	10,375	719	15,064	11,814	763	15,489	12,143	789	17,829	13,989	841
41°F (5°C)	13,905	10,907	756	15,836	12,419	802	16,283	12,766	829	18,743	14,707	884
50°F (10°C)	14,484	11,361	788	16,496	12,937	835	16,961	13,298	864	19,524	15,319	921
59°F (15°C)	15,260	11,970	830	17,380	13,630	880	17,870	14,010	910	20,570	16,140	970
68°F (20°C)	17,281	13,553	1,221	18,361	14,398	1,260	19,621	15,389	1,337	22,501	17,650	1,430
77°F (25°C)	17,077	13,395	1,254	18,163	14,246	1,293	19,441	15,249	1,375	22,321	17,504	1,474
86°F (30°C)	16,235	12,733	1,403	17,317	13,584	1,447	18,901	14,824	1,535	21,631	16,963	1,645
95°F (35°C)	15,367	12,052	1,507	16,441	12,891	1,551	18,001	14,119	1,650	20,719	16,252	1,766
104°F (40°C)	14,623	11,469	1,557	15,691	12,307	1,606	17,533	13,754	1,705	19,975	15,662	1,826
113°F (45°C)	13,873	10,879	1,590	14,941	11,718	1,639	16,789	13,164	1,744	19,225	15,079	1,865
118°F (48°C)	13,501	10,587	1,606	14,401	11,292	1,656	16,201	12,709	1,760	18,541	14,544	1,881

HEATING PERFORMANCE

	Indoor Ambient Temperature											
DB / WB	70°F (21°C) 59°F (15°C)			75°F (24°C) 63°F (17°C)			80°F (27°C) 67°F (19°C)			90°F (32°C) 73°F (23°C)		
DB	TC (BtuH)	Input Power (watts)	COP	TC (BtuH)	Input Power (watts)	COP	TC (BtuH)	Input Power (watts)	COP	SC (BtuH)	Input Power (watts)	COP
Outdoor Ambient Temperature (DB)												
-5°F (-21°C)	10,865	1,061	3.00	10,656	1,087	2.87	10,325	1,112	2.72	9,968	1,146	2.55
0°F (-18°C)	11,121	1,095	2.98	10,800	1,117	2.83	10,598	1,158	2.68	10,319	1,185	2.55
5°F (-15°C)	11,428	1,119	2.99	11,099	1,142	2.85	10,891	1,184	2.69	10,606	1,212	2.56
7°F (-14°C)	11,736	1,144	3.01	11,397	1,167	2.86	11,184	1,210	2.71	10,893	1,238	2.58
17°F (-8°C)	12,597	1,193	3.09	12,229	1,217	2.94	11,997	1,262	2.78	11,683	1,291	2.65
28°F (-2°C)	14,230	1,271	3.28	13,856	1,297	3.13	13,458	1,345	2.93	13,298	1,376	2.83
38°F (3°C)	17,693	1,463	3.54	17,319	1,492	3.40	16,927	1,548	3.20	16,761	1,583	3.10
47°F (8°C)	19,997	1,522	3.85	19,392	1,553	3.66	19,006	1,610	3.46	18,483	1,647	3.29
57°F (14°C)	20,657	1,551	3.90	20,033	1,583	3.71	19,635	1,641	3.50	19,089	1,679	3.33
68°F (20°C)	21,490	1,600	3.93	20,840	1,640	3.72	20,430	1,700	3.52	19,860	1,740	3.34
77°F (25°C)	21,990	1,640	3.93	21,330	1,680	3.72	20,900	1,740	3.52	20,320	1,780	3.34

LEGEND

DB --- Dry Bulb
WB --- Wet Bulb
TC --- Total Capacity (BtuH)
SC --- Sensible Capacity (BtuH)
Input Power---(Watts)
COP---Coefficient Of Performance

GREE

livo

Cool Quiet Comfort & more

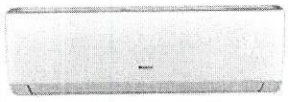
Submittal Data: LIVS18HP230V1A

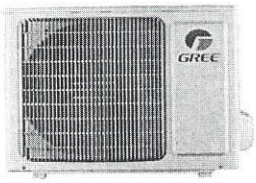
18,000 BTU/H (208/230V) Wall Mounted Heat Pump System

Job Name		Location	Date
Purchaser		Engineer	
Submitted To		For ☐ Reference ☐ Approval ☐ Construction	
Unit Designation		Schedule No.	

GENERAL FEATURES

- -High Efficiency DC Inverter Technology
- '-Compact and Quiet Design
- -Vertical Swing Louver
- -Wireless Remote with LCD Display
- -XK-41 Wired Tether Controller (Sold Separately)
- -Low Ambient Cool to 0 deg F
- -Blue Fin Condenser Coil
- -5 year Limited Parts Warranty
- -7 year Limited Compressor Warranty





(Sold Separately)

AHRI Certified Ref No: 8783740

System Ratings

Cooling		
Rated Capacity		18,000 BTU/H
Capacity Range		7,165-20,000 BTU/H
Power Input (Max)		1,920 W
SEER		16.0
EER		9.0
Heating at 47° F		
Rated Capacity		19,000 BTU/H
Capacity Range		7,336-23,498 BTU/H
Power Input (Max)		2,000 W
HSPF		9.0
COP		2.8
Heating at 17° F		
Rated Capacity		12,000 BTU/H
Operating Range		
Cooling	(Max)	115°F (46 C)
	(Min)	0°F (-18 C)
Heating	(Max)	75°F (24 C)
	(Min)	-4°F (-20 C)

Refrigerant Piping Data

Gas Pipe Size (OD)	1/2-in
Liquid Pipe Size (OD)	1/4-in
Connection Method	Flared
Factory Charge	49.4 oz
Additional Charge	0.2 oz
Pre-Charge Length	25-ft
MAX Refrigerant Pipe Length	82-ft
MIN Refrigerant Pipe Length	10-ft
MAX Refrigerant Pipe Elevation	33-ft

Indoor Unit Data

Fan Motor	Type	Cross-Flow
	Output Power	30 W
	FLA	0.3 A
Airflow		
Cooling Wet (Lo/Hi)		282/471 CFM
Heating Dry (Lo/Hi)		282/471 CFM
Sound Pressure Level		
Cooling (Min/Max)		35/46 db(A)
Heating (Min/Max)		35/46 db(A)
Dehumidification		3.80 pt/hr

Outdoor Unit Data

Compressor	Type	DC Inverter Driven Rotary
	RLA	12.1 A
Refrigerant Type		R410A
Fan Motor	Output Power	60 W
	FLA	0.52 A
Sound Pressure		
Cooling/Heating		56/56 db(A)

Electrical Data

Power Supply	
Normal Operational Voltage	208/230 V, 1 Phase, 60 Hz
Voltage Range	187 - 253 V
MCA	16.0 A
MOCP/Breaker Size	25 A
Main Power Wire Size	12-2 AWG

7 YEAR 5 YEAR · INVERTER · R410A · AHRI CERTIFIED · ETL

COOLING PERFORMANCE (BtuH)*

Outdoor Ambient DB	Indoor Ambient Temperature							
	68F DB (20C)		73F DB (23C)		80F DB (27C)		82F DB (28C)	
	57F WB (14C)		61F WB (16C)		67F WB (19C)		68F WB (20C)	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC
0°F	9,302	7,296	9,827	7,704	11,091	8,699	11,423	8,910
5°F	10,111	7,930	10,682	8,374	12,055	9,455	12,417	9,685
14°F	11,729	9,199	12,391	9,714	13,984	10,968	14,404	11,235
23°F	12,850	10,080	13,745	10,782	15,749	12,352	16,221	12,653
32°F	13,332	10,458	14,260	11,186	16,339	12,815	16,830	13,127
41°F	13,832	10,850	14,795	11,605	16,952	13,296	17,461	13,619
50°F	14,351	11,257	15,350	12,041	17,588	13,794	18,115	14,130
59°F	15,583	12,222	16,668	13,072	18,255	14,314	18,803	14,666
68°F	17,649	13,842	18,752	14,705	20,038	15,716	20,640	16,099
77°F	17,440	13,680	18,549	14,549	19,855	15,574	20,450	15,951
86°F	16,582	13,004	17,685	13,873	19,303	15,139	19,882	15,508
95°F	15,694	12,309	16,025	12,569	18,384	14,419	18,935	14,770
104°F	14,934	11,713	15,259	11,967	17,056	14,047	17,567	13,702
113°F	14,168	11,111	14,707	11,533	15,833	13,445	16,308	12,720
115°F	14,126	11,078	14,768	11,581	15,787	13,393	16,261	12,683

HEATING PERFORMANCE (BtuH)*

Outdoor Ambient DB	Indoor Ambient Temperature							
	68F DB (20C)		73F DB (23C)		80F DB (27C)		86F DB (30C)	
	57F WB (14C)		61F WB (16C)		67F WB (19C)		72F WB (22C)	
	TC	SHC	TC	SHC	TC	SHC	TC	SHC
-4°F	10,146	10,146	9,975	9,975	9,776	9,776	9,572	9,572
0°F	10,994	10,994	10,811	10,811	10,596	10,596	10,365	10,365
6°F	11,598	11,598	11,402	11,402	11,176	11,176	10,933	10,933
10°F	12,080	12,080	11,878	11,878	11,642	11,642	11,390	11,390
16°F	12,446	12,446	12,238	12,238	11,995	11,995	11,732	11,732
19°F	12,684	12,684	12,476	12,476	12,228	12,228	11,958	11,958
24°F	14,111	14,111	13,898	13,898	13,621	13,621	13,385	13,385
32°F	15,771	15,771	15,557	15,557	15,248	15,248	15,045	15,045
41°F	17,668	17,668	17,461	17,461	17,113	17,113	16,942	16,942
43°F	18,144	18,144	17,930	17,930	17,574	17,574	17,418	17,418
47°F	19,718	19,718	19,376	19,376	18,991	18,991	18,534	18,534
53°F	19,913	19,913	19,565	19,565	19,176	19,176	18,717	18,717
59°F	20,371	20,371	20,011	20,011	19,613	19,613	19,144	19,144
64°F	20,804	20,804	20,438	20,438	20,031	20,031	19,553	19,553
70°F	21,194	21,194	20,828	20,828	20,414	20,414	19,925	19,925
75°F	21,493	21,493	21,115	21,115	20,695	20,695	20,200	20,200

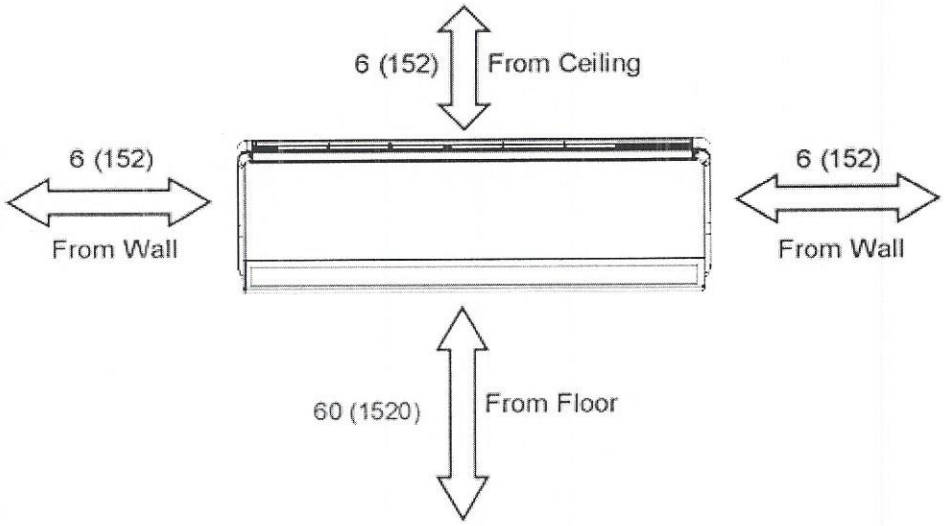
* Maximum system capacity

TC- Total Capacity (BtuH)
SHC- Sensible Capacity (BtuH)

MINIMUM SPACING REQUIREMENTS

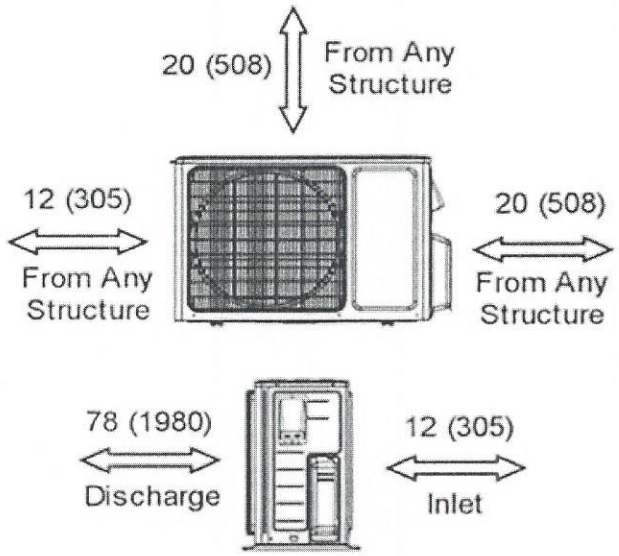
Units: inch (mm)

INDOOR



Units: inch (mm)

OUTDOOR

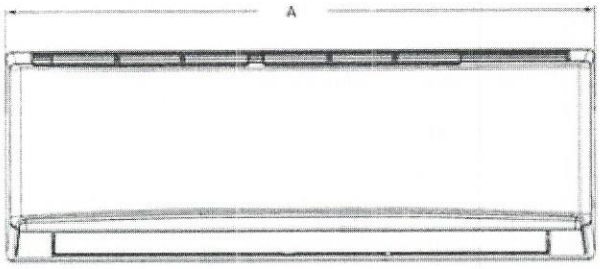


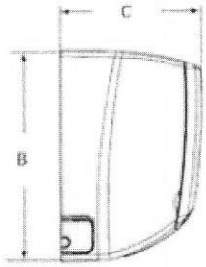
DIMENSIONAL SPECIFICATIONS LIVS18HP230V1A

INDOOR UNIT DIMENSIONS

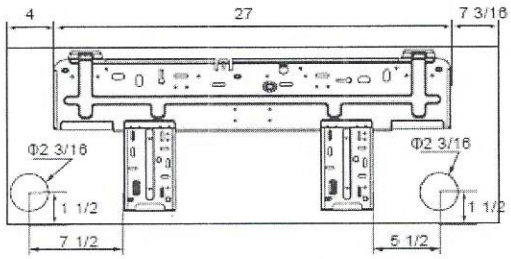
Units: inch

Model No: LIVS18HP230V1AH





Dimensions	
A	38.2
B	11.8
C	8.8



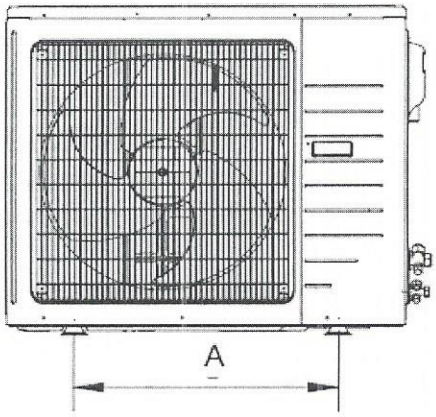
Weight (Net/Gross) 29.8/36.4 lbs

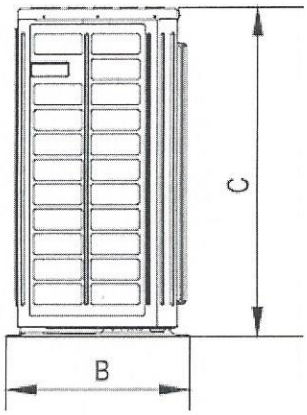
Liquid Line Valve	1/4-in OD Flared
Gas Line Valve	1/2-in OD Flared
Drain Connector	5/8-in OD

OUTDOOR UNIT DIMENSIONS

Units: inch

Model No: LIVS18HP230V1AO





Dimensions	
A	22.0
B	15.3
C	27.6
D	38.0
E	14.3

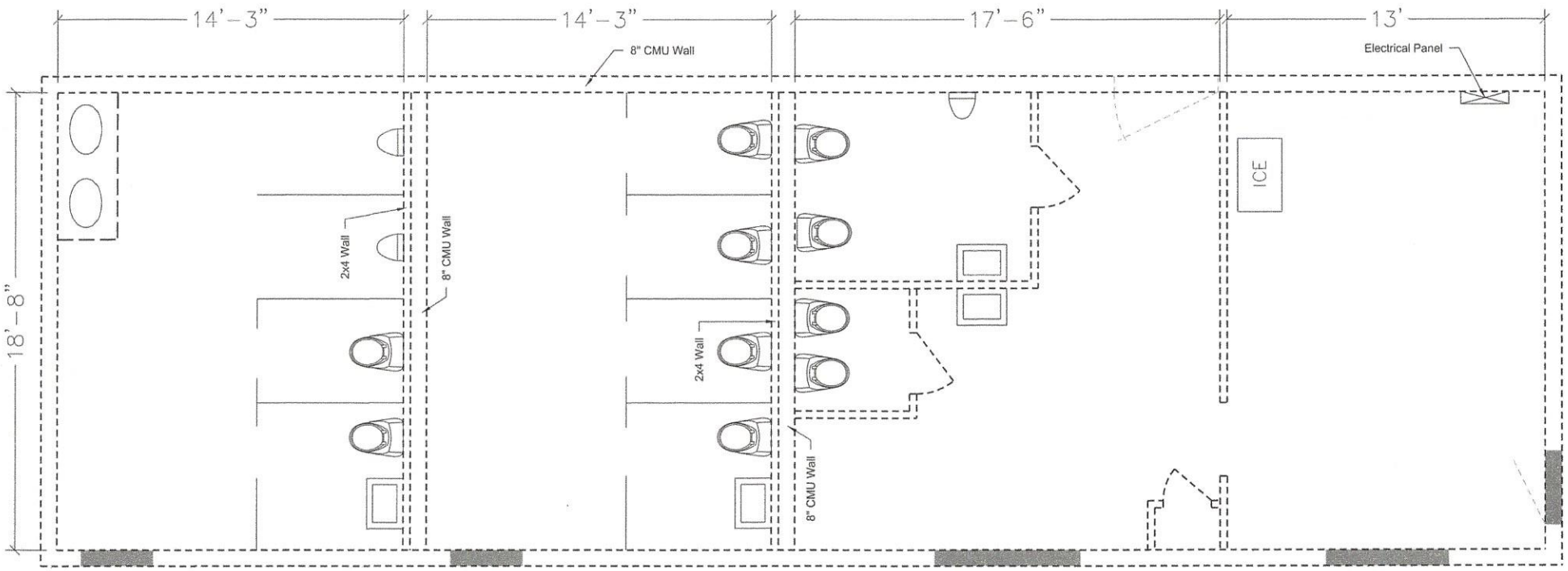
Weight (Net/Gross) 95.9/105.8 lbs

Liquid Line Valve	1/4-in OD Flared
Gas Line Valve	1/2-in OD Flared

Notes:

1. Recommended Interconnecting Cable Type 14 AWG 4 Stranded Bare Copper Conductors THHN 600V Wire
2. Power wiring cable size must comply with applicable national and local codes.
3. Test conditions are based on AHRI 210/240.

GREE



VERIFY ALL MEASUREMENTS

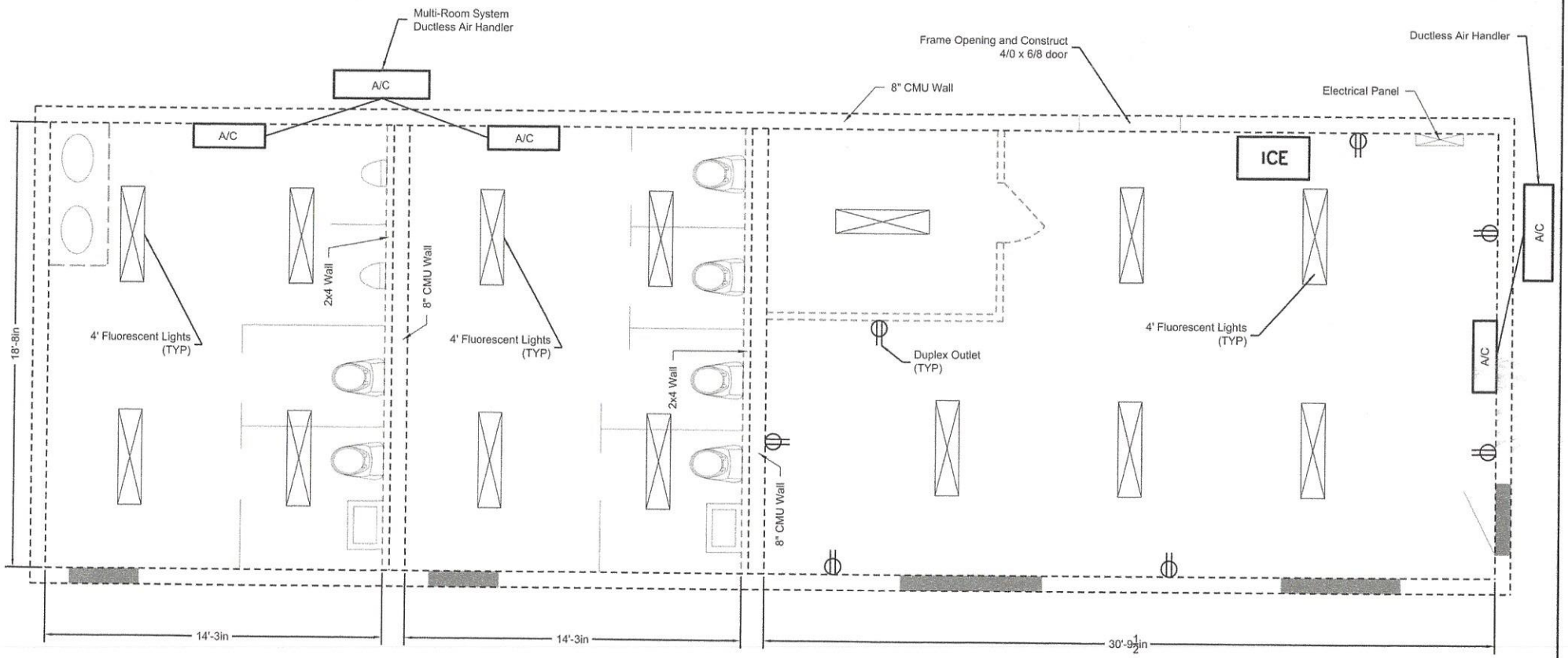
REVISIONS	
DATE	DESCRIPTION

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS

ANNIE MATTOX RECREATION MODIFICATIONS

EXISITNG RESTROOMS & CONCESSIONS

SHEET NO.
1



VERIFY ALL MEASUREMENTS

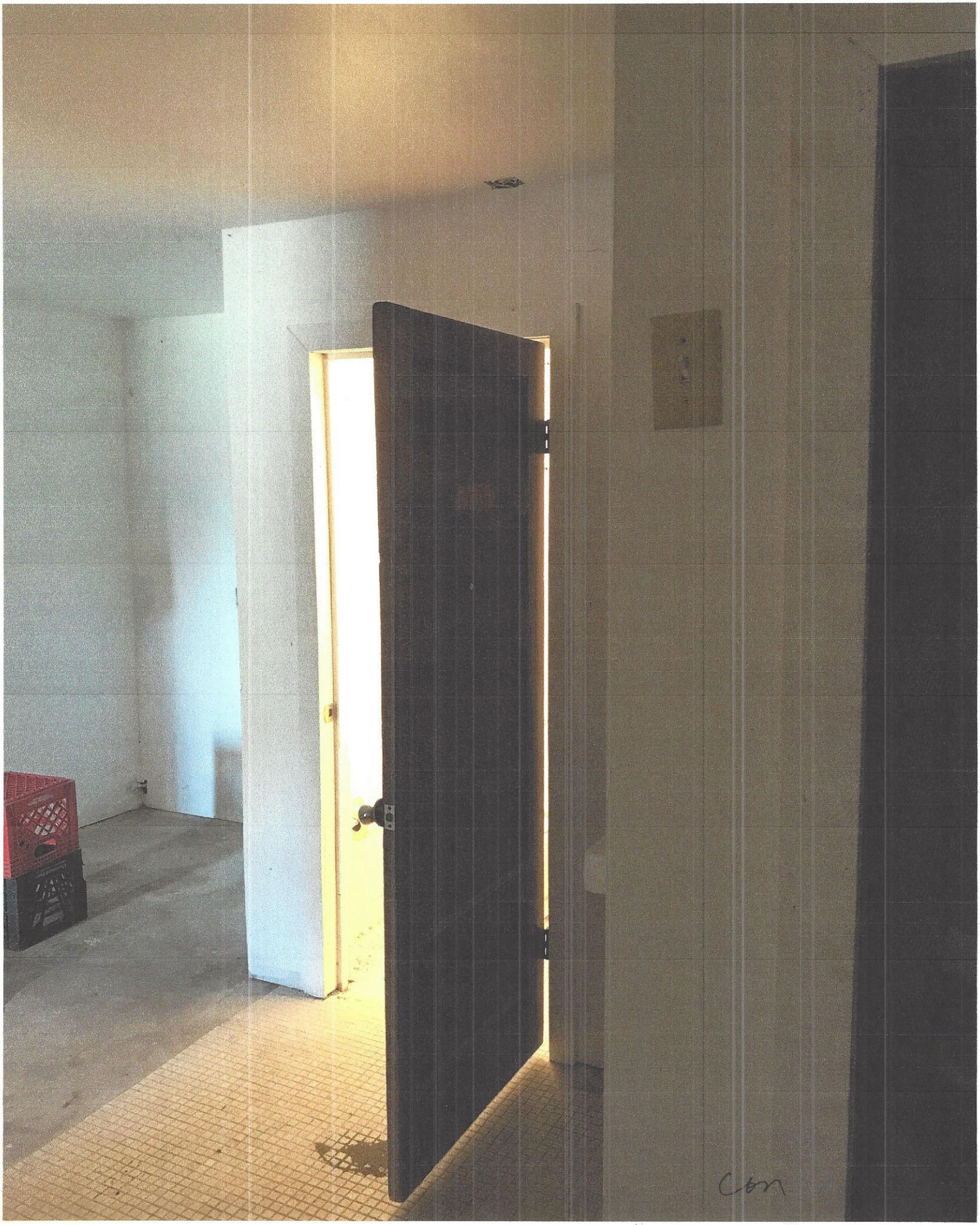
REVISIONS	
DATE	DESCRIPTION

COLUMBIA COUNTY
BOARD OF COUNTY
COMMISSIONERS

ANNIE MATTOX RECREATION MODIFICATIONS

PROPOSED RESTROOMS & CONCESSIONS

SHEET NO.
3

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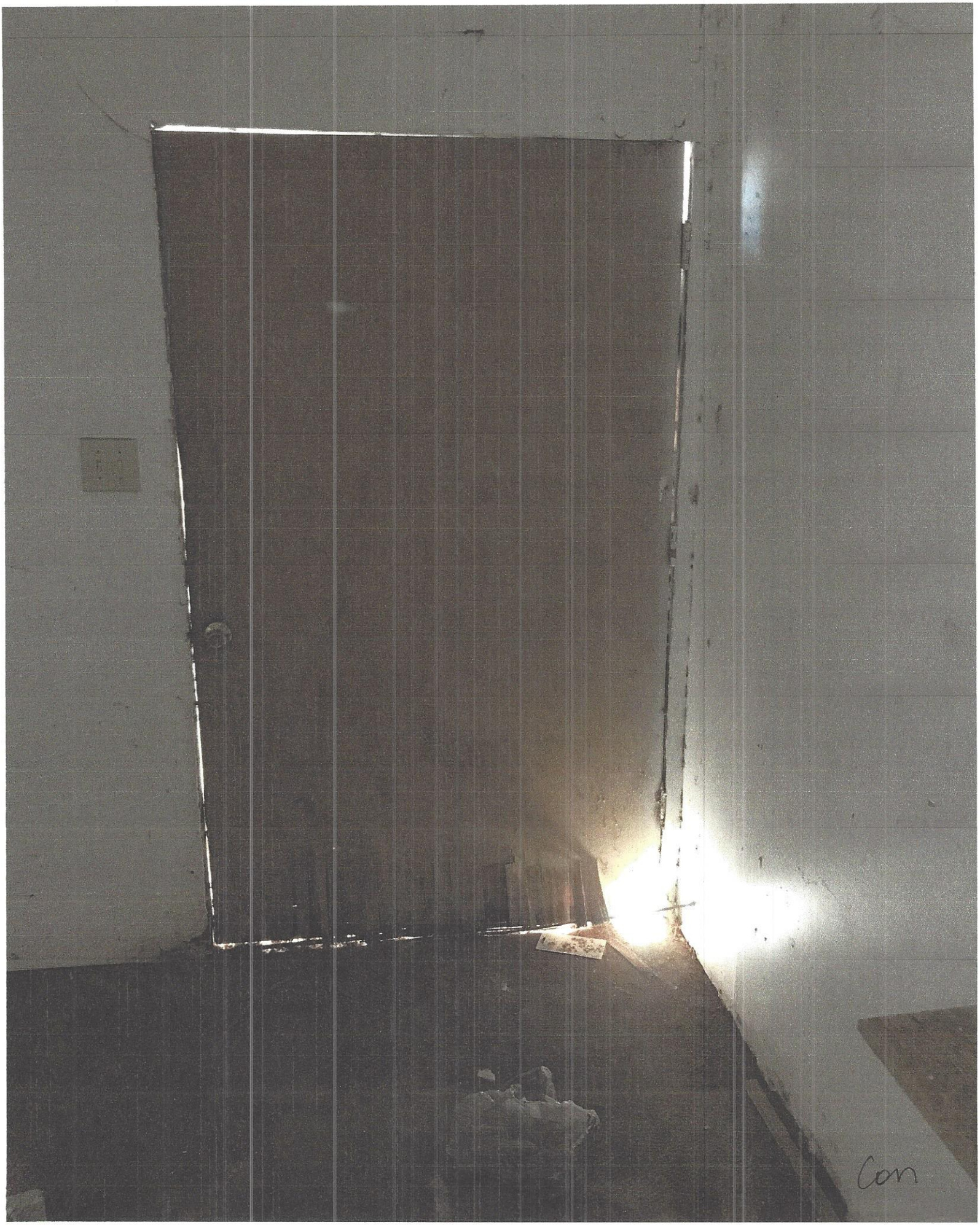
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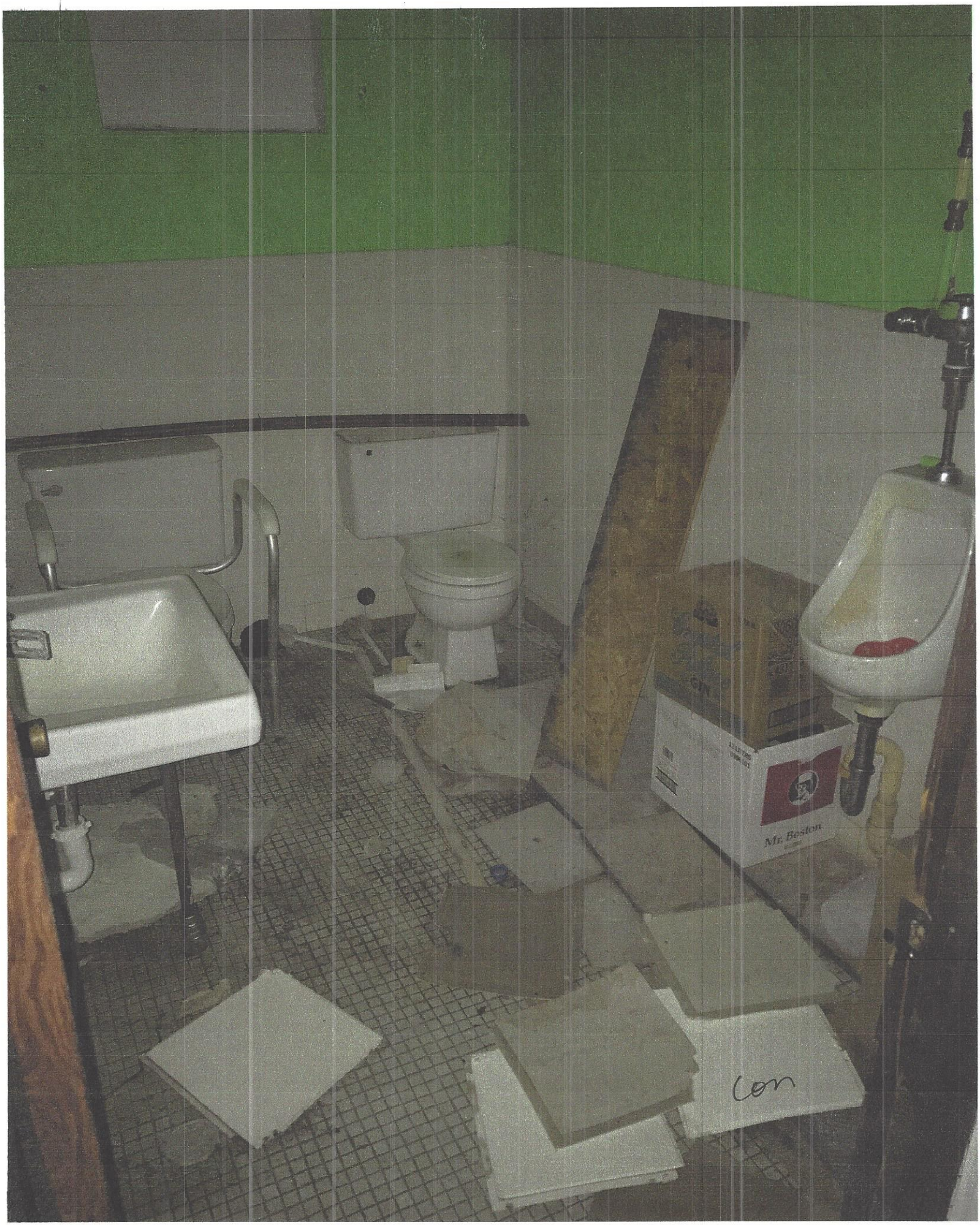
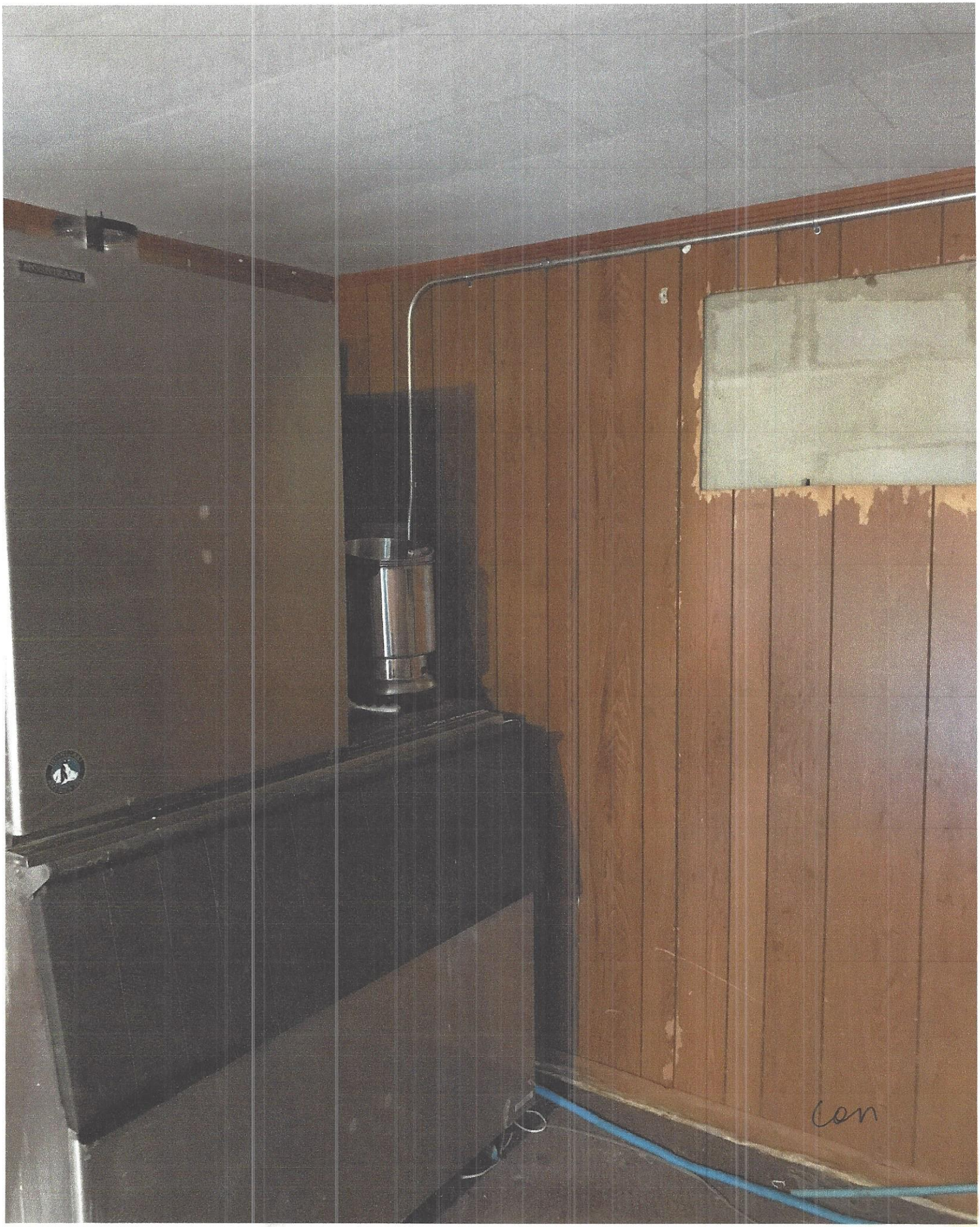
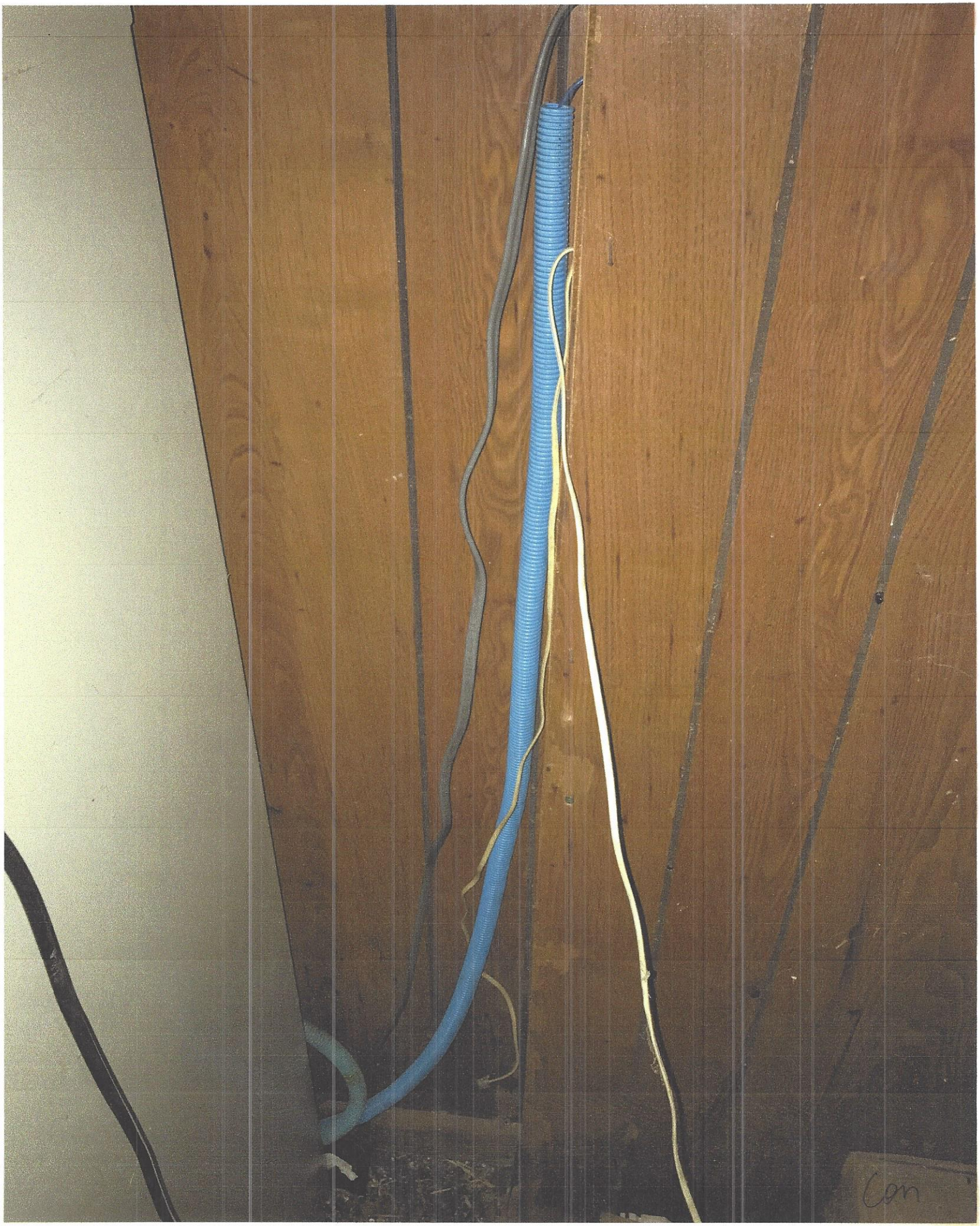
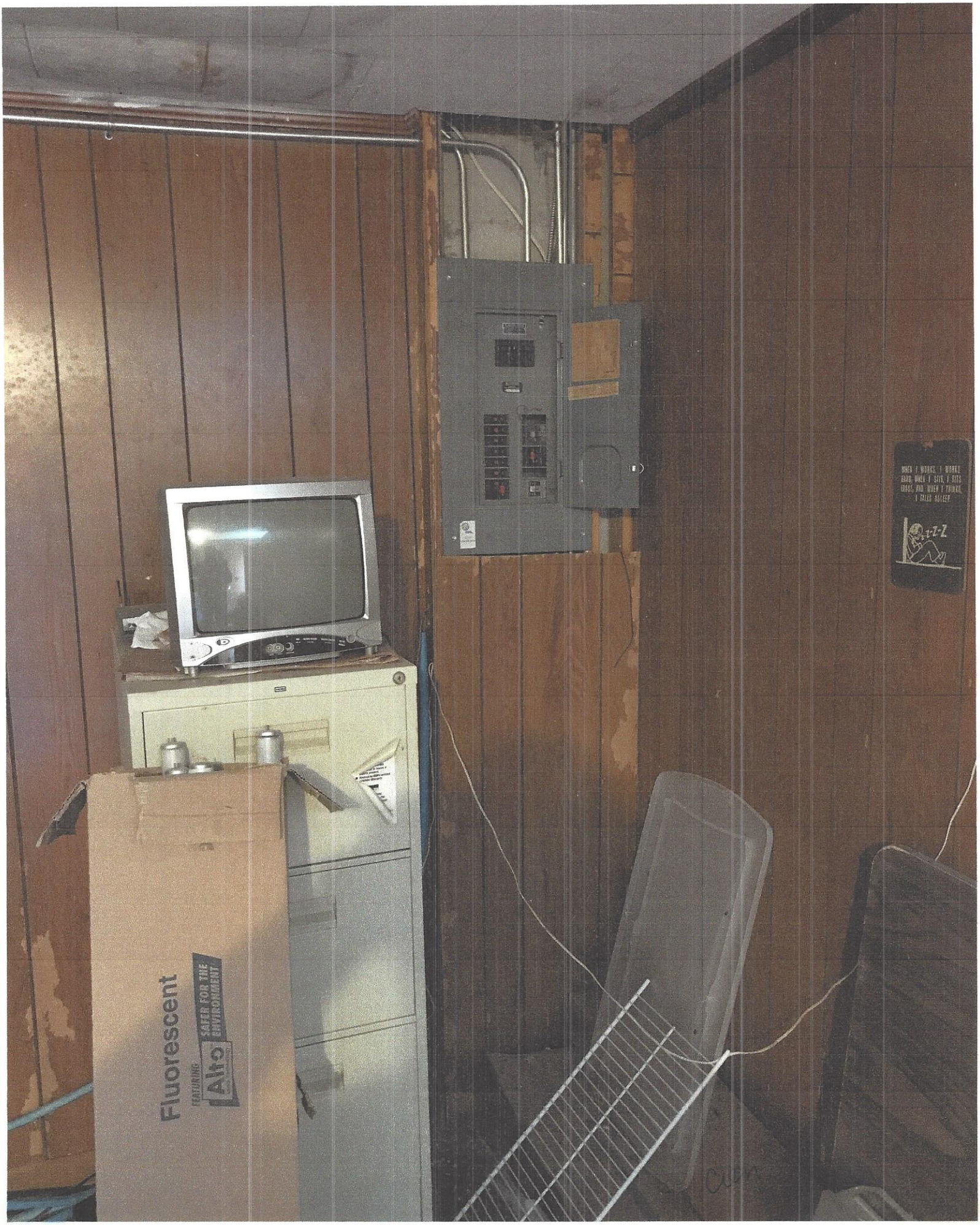
Con


Mr. Beston

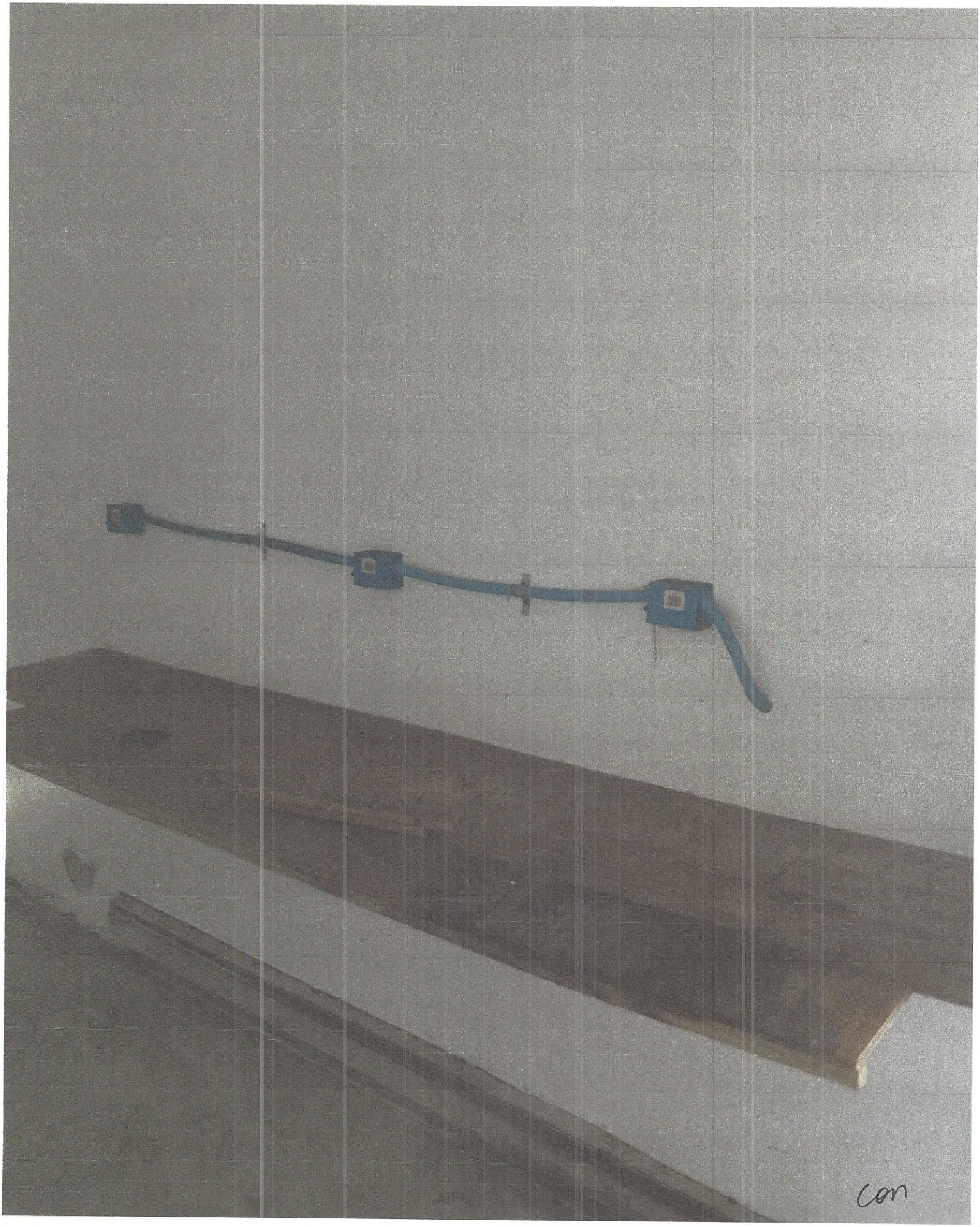


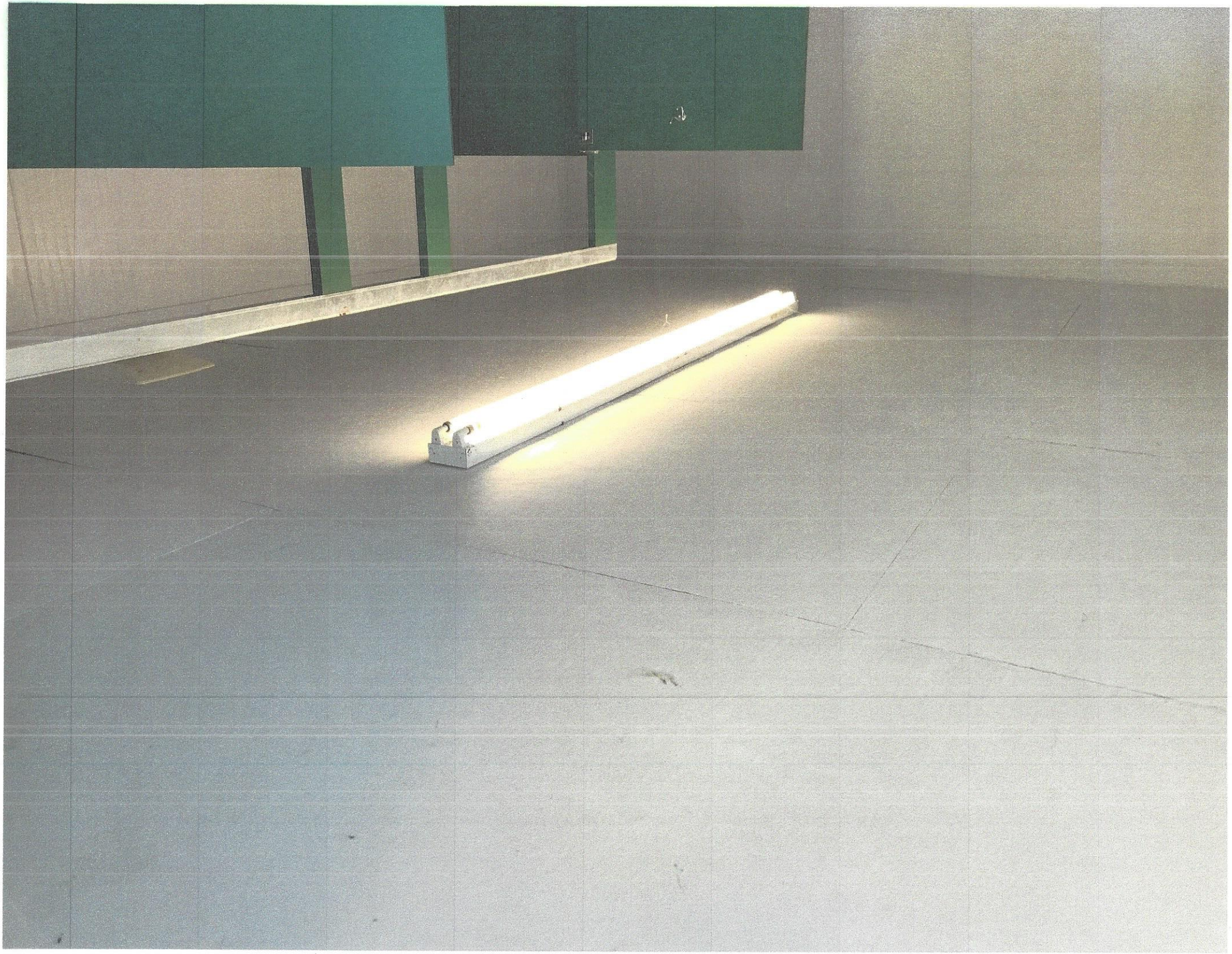



Fluorescent
FEATURING
SAFER FOR THE ENVIRONMENT

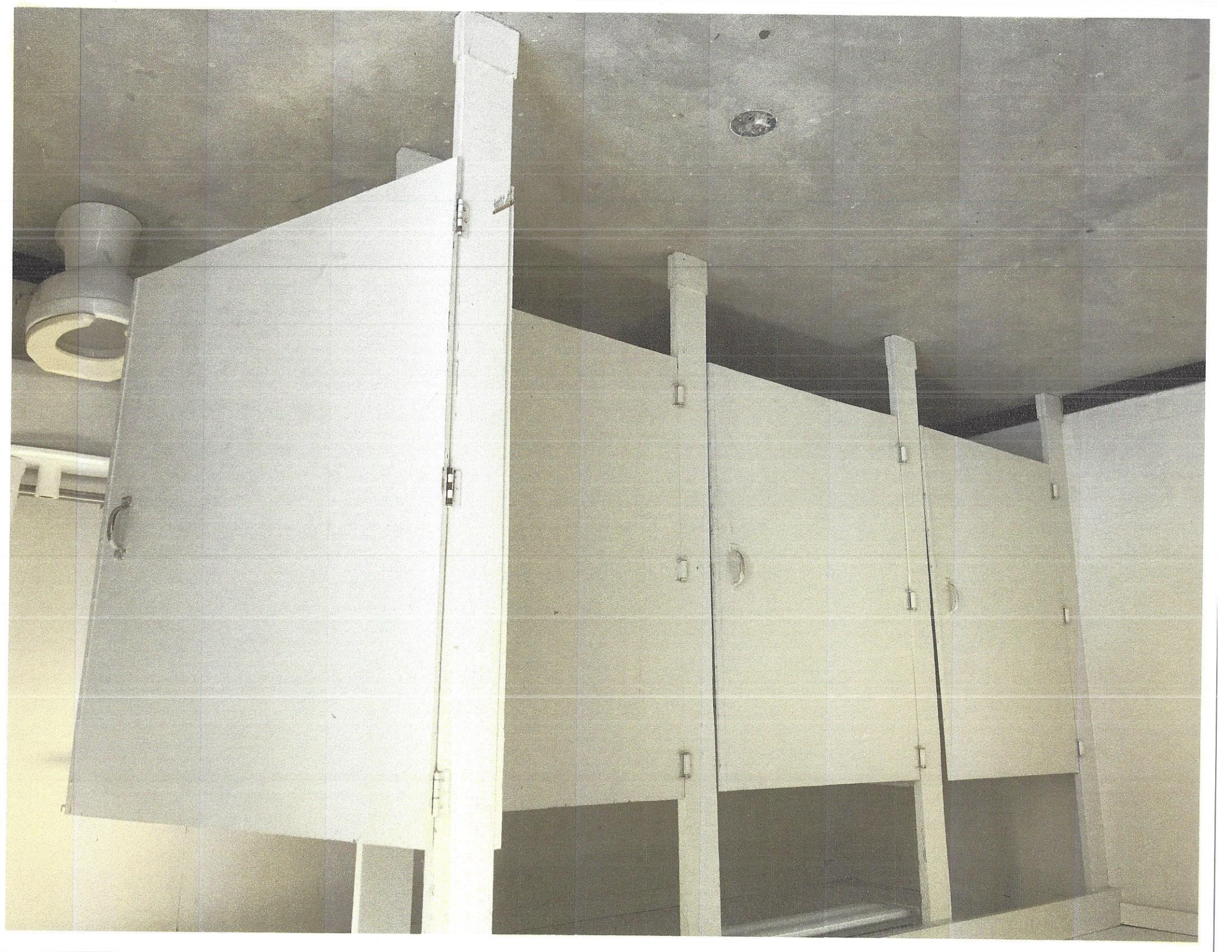

Best In The Land

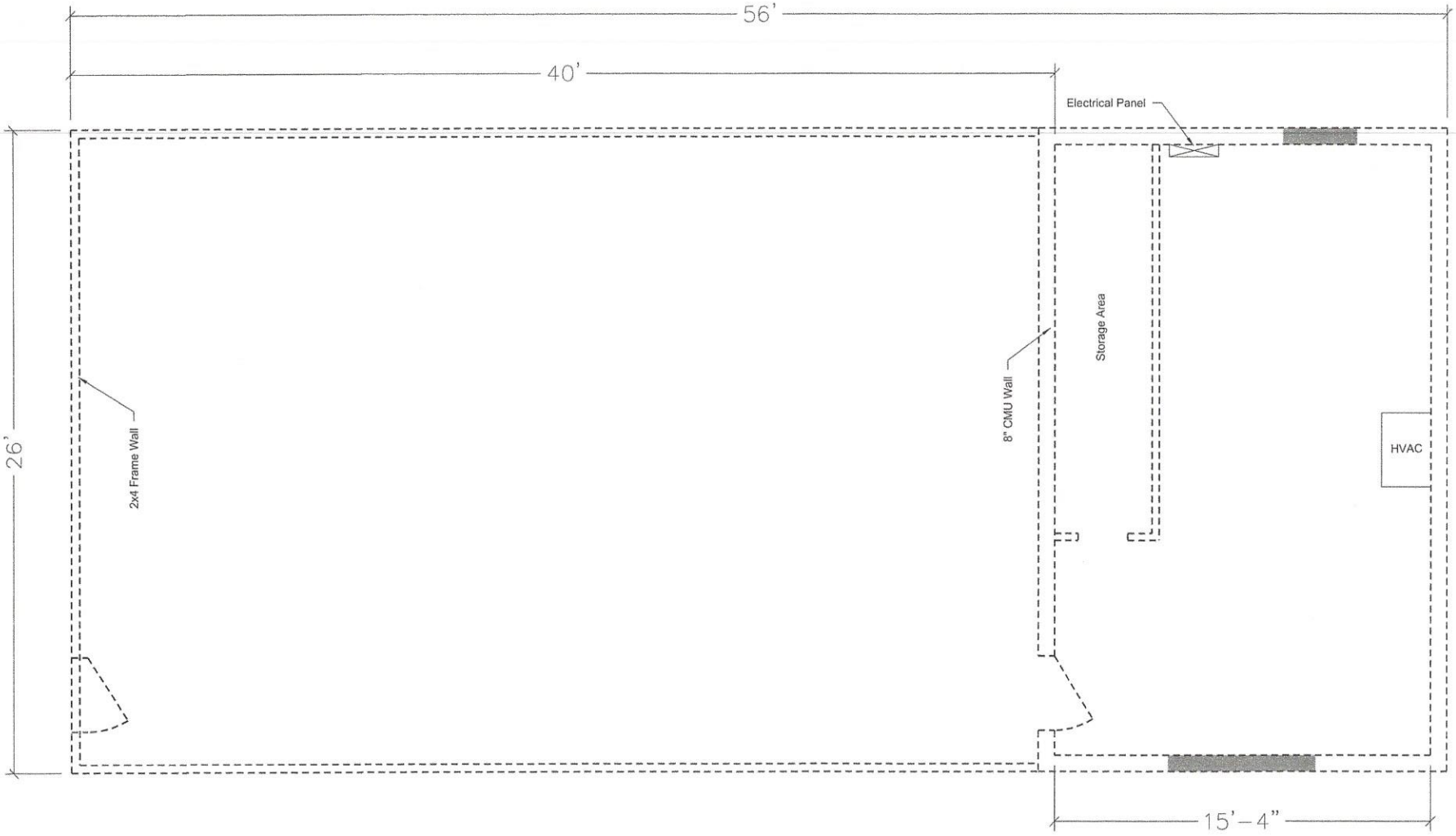

Cor






Disinfectant
Wipes





VERIFY ALL MEASUREMENTS

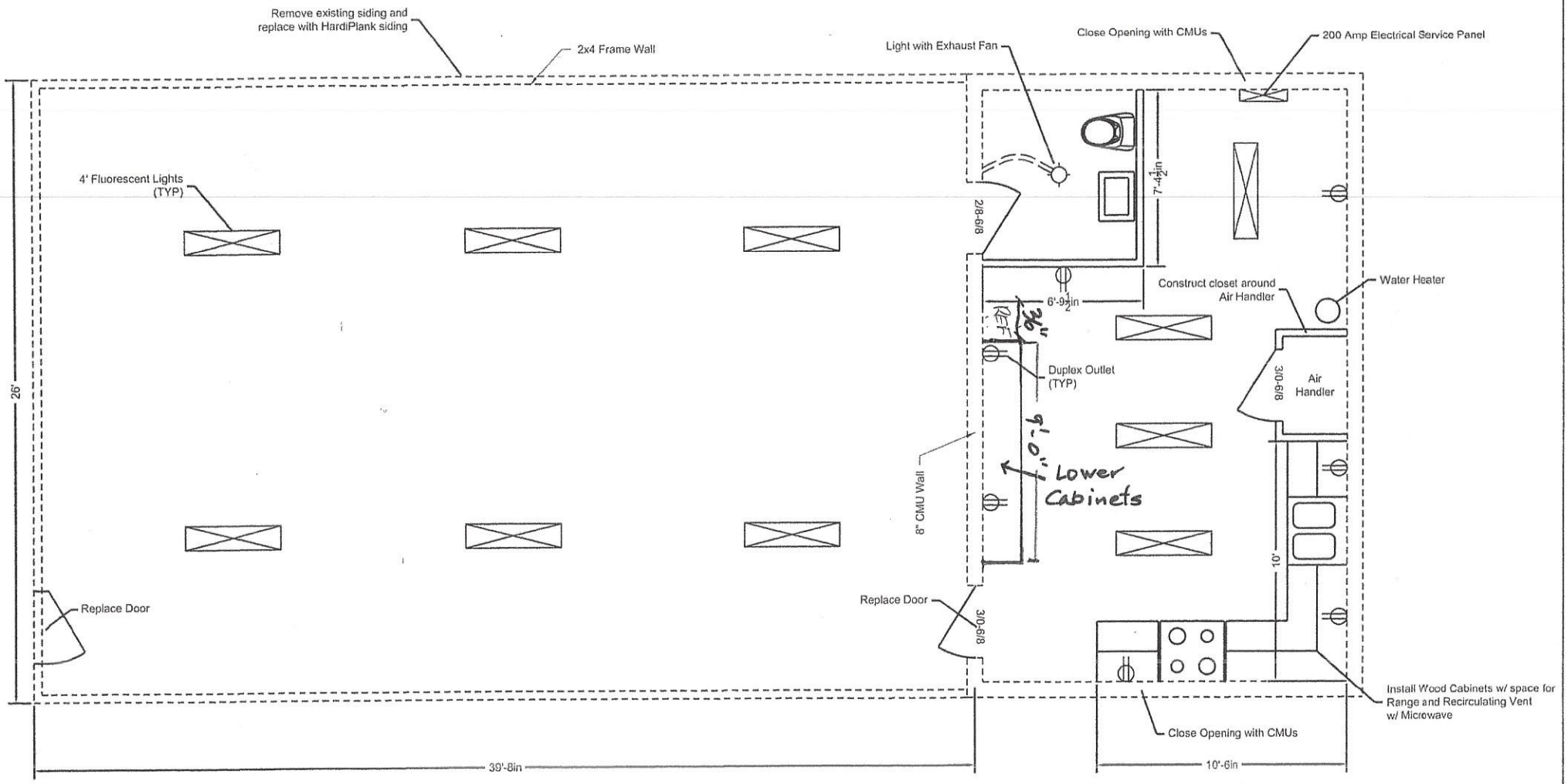
REVISIONS	
DATE	DESCRIPTION

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS

ANNIE MATTOX RECREATION MODIFICATIONS

EXISITNG MULTIPURPOSE BUILDING

SHEET NO. 2



VERIFY ALL MEASUREMENTS

REVISIONS DATE	DESCRIPTION

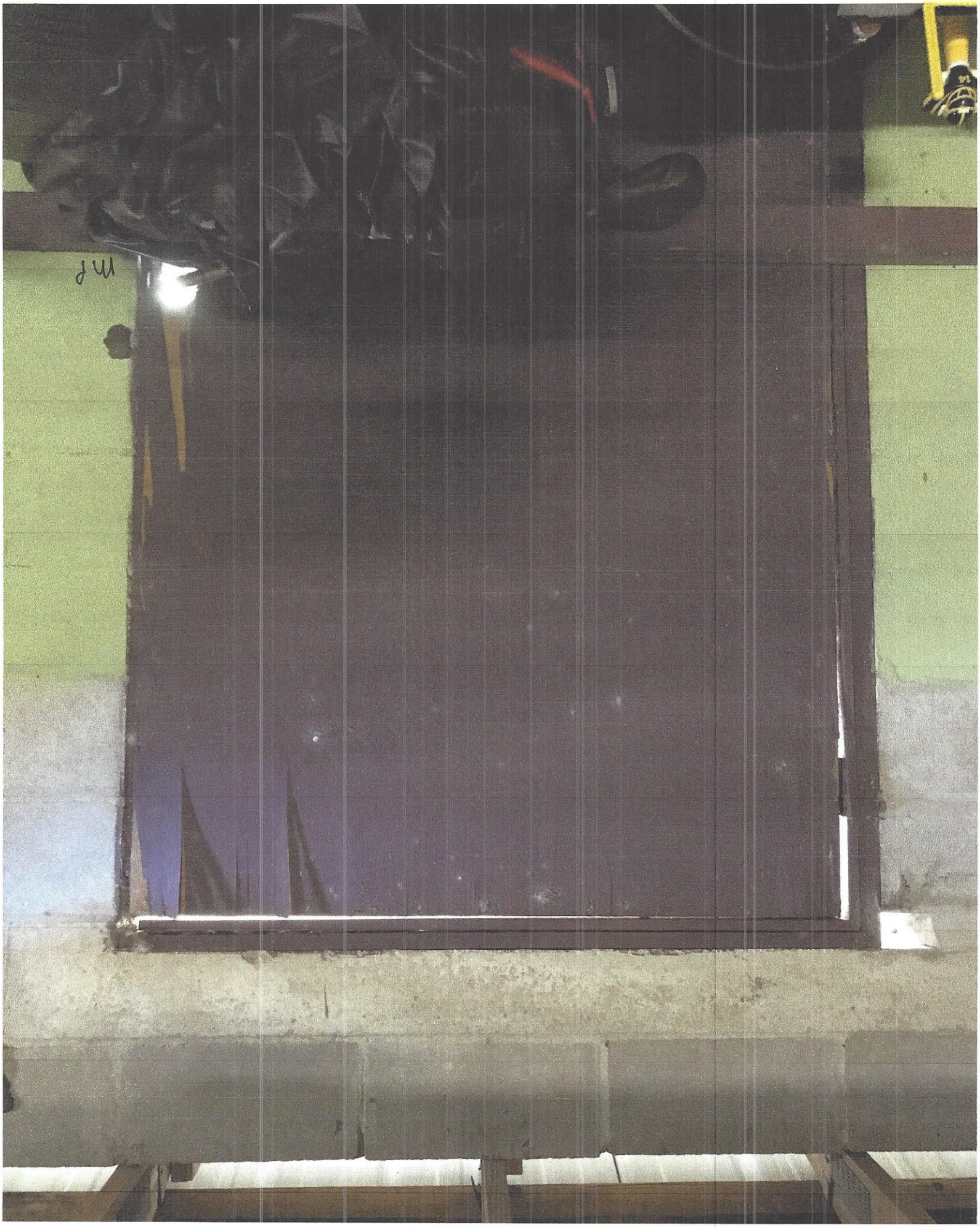
COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS

ANNIE MATTOX RECREATION MODIFICATIONS

PROPOSED MULTIPURPOSE BUILDING

SHEET NO. 4


EXIT



HP Deskjet 3780