RESTORE MICHIANA

Preservation and Maintenance of Wood Windows

HISTORIC PRESERVATION COMMISSION
OF SOUTH BEND & ST. JOSEPH COUNTY

INDIANA LANDMARKS

Preservation and Maintenance of Wood Windows: MENU

PMWW: WHY 60-minute production……available at YouTube.com/RestoreMichiana

PMWW: HOW 45-minute production……available at YouTube.com/RestoreMichiana

PMWW: PARTS & TERMINOLOGY ……..……..available at RestoreMichiana.com

PMWW: FLOOR PLANS & MEASUREMENTS ……..……..……..available at RestoreMichiana.com

PMWW: CONDITION ASSESSMENT ……..……..……..available at RestoreMichiana.com

PMWW: TOOLS & SUPPLIES ……..……..……..available at RestoreMichiana.com

PMWW: TOOLBOXES & WORKSTATIONS ……..……..available at RestoreMichiana.com

PMWW: ESTIMATES - QUANTITY & COST ……..……..available at RestoreMichiana.com

PMWW: HOW STEP-BY-STEP ……..……..……..available at RestoreMichiana.com

PMWW: WHY TRANSCRIPT ……..……..……contact Historic Preservation Commission

PMWW: HOW MANUAL ……..……..……contact Historic Preservation Commission

PMWW: PHOTO PROGRESSION ……..……..……available at RestoreMichiana.com

Preservation and Maintenance of Wood Windows, the two-DVD set and bound printed supplements are available for purchase; please contact Historic Preservation Commission of South Bend & St. Joseph County for details.

All proceeds after reproduction costs are applied to support Restore Michiana educational programming.

Contact to purchase:
Historic Preservation Commission of South Bend & St. Joseph County
StJosephCountyIndiana.com/departments/SJCHP
SBSJCHPC@co.st-joseph.in.us
574/235.9798

TAKE A SURVEY TO HELP US UNDERSTAND YOUR WINDOW SITUATION:
SurveyMonkey.com/s/FQJWJXH

FACEBOOK:
Preservation and Maintenance of Wood Windows
post your before, progress and after photos here

RESTORE MICHIANA

Preservation and Maintenance of Wood Windows

Preservation and Maintenance of Wood Windows: WHY, HOW, and Supplements is a two-part production with a goal to conserve the old growth wood windows that many existing buildings already have and to make knowledge of the subject accessible. PMWW has been produced by the Restore Michiana partnership of Historic Preservation Commission of South Bend & St. Joseph County and Indiana Landmarks. Funding provided by Efroymson Family Fund of the Central Indiana Community Foundation enables online access to the productions at no charge to you.

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INDIANA LANDMARKS

IndianaLandmarks.org

EFROYMSON FAMILY FUND
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Inspiring philanthropy

cicf.org/efroymson-family-fund

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WHY is a lesson comparing the facts and performance science between old growth wood windows and newer replacement windows so that you know why it is important to preserve. The lecture was presented at WNIT Public Television studios on September 17, 2010, recorded and produced by WNIT.

wnit picture it

WNIT.org

HOW offers a step-by-step demonstration enabling you to maintain or restore old growth wood windows and to excel in energy performance. HOW was recorded and produced by Grass Roots Media in February 2011, at 617 Portage Avenue, while undergoing redevelopment with the owner, Chapin Park, Inc.

grass roots MEDIA

GrassRootsMedia.net

CPI CHAPIN PARK, INC

Chapin Park Inc

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Richard Spigelmyer of Replacement Systems International offered his generous support and oversight as Window Expert. Richard has over sixty years experience in the repair and restoration of historic buildings and is nationally recognized as an authority on window design and rehabilitation. As President of Replacement Systems International, he has a comprehensive knowledge of new and historic window materials and performance characteristics.

Replacement Systems International
ReplacementSystemsInt@gmail.com
269/345.8214

John Partee of Practical Glass and More offered his generous support and oversight as Craftsman. John is a highly proficient craftsman for the repair and restoration of historic wood windows. As the President of Practical Glass and More, he has over forty years of experience in the glass industry as a glazier and fabricator. John also has extensive experience as a woodworker.

Practical Glass and More, Inc.
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269/207.7985

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ADDITIONAL CREDITS
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Advisor: Steve Schoberg

Photography of window maintenance in progress taken by Elicia D. Feasel documenting her own project.

Preservation and Maintenance of Wood Windows: PARTS & TERMINOLOGY

Most double-hung windows have similar parts. Double-hung means that the window includes two independent sashes that slide past each other in separate tracks. The structural support of a window is the **FRAME**, consisting of vertical side **JAMBS**, the horizontal **HEAD** at the top and horizontal **SILL** on the bottom exterior and **STOOL** on the bottom interior. The two separate tracks in the jamb are created by three stops including an **INTERIOR STOP**, a **CENTER PARTING STOP** that separates the two sashes and finally a **BLIND STOP**, which is actually part of the exterior of the window frame.

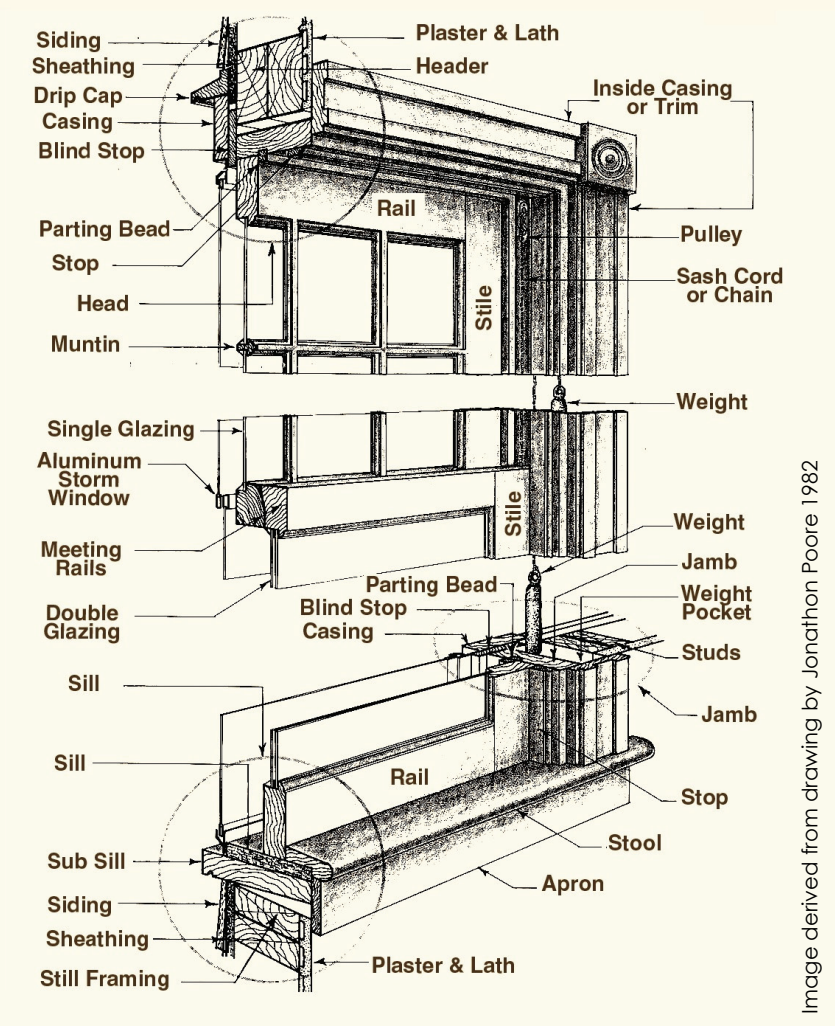


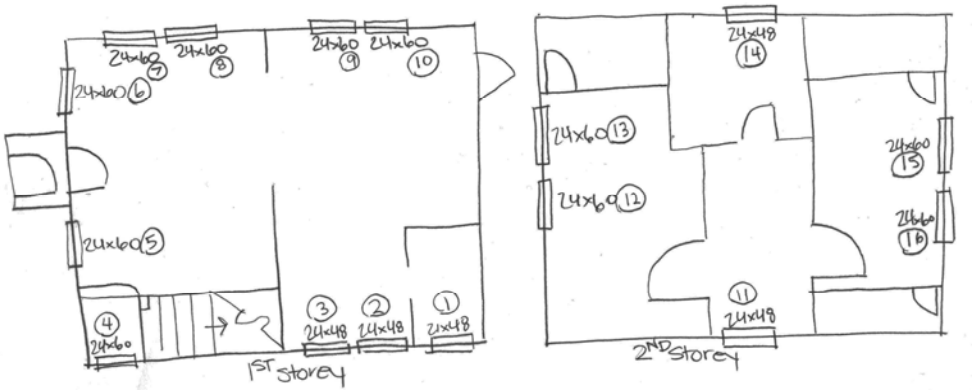
Image derived from drawing by Jonathon Poore 1982

The **BOTTOM SASH** is closer to the house interior and is in the **INTERIOR TRACK**. It should rise to allow for outdoor air to enter the house. The **TOP SASH** is in the **EXTERIOR TRACK** and is closer to the house exterior. Many top sashes are currently painted shut, although not always. The top sash once lowered to allow for indoor air to escape the house and could lower once again to achieve proper passive air circulation. Each sash is counter-balanced by a **WEIGHT** connected to a **ROPE CORD** or **CHAIN** that runs over a **PULLEY** at the top of the jamb. The weights reside in a **WEIGHT POCKET** constructed into the jamb of the frame, in which a removable panel is present for ease of access. The **CASING** is the decorative moulding that frames the window interior, functionally covering the weight pocket behind the plaster and the frame. Sash components consist of horizontal top and bottom **RAILS** and two vertical side **STILES**. Where the rails meet in the middle are called **MEETING RAILS** and they are often beveled for a more air tight fit. From the exterior, the glass sits on a ledge called a **RABBET**. Specific to bottom sashes, they sometimes have a slot in the meeting rail that the glass is inserted into. The glass is bedded into the rabbet with **BACK GLAZING PUTTY** then held into place on the opposite side with **GLAZING POINTS** and **FACE GLAZING**. In some cases a window sash is divided into smaller panes of glass. The wood dividers are called **MUNTINS** and each small pane is a **LIGHT**.

Preservation and Maintenance of Wood Windows: FLOOR PLANS & MEASURMENTS

Instructions	Sketch basic floor plans; include locations of all windows.
	Measure each window. Width" x Height" inside jamb to inside jamb, stay consistent.
	Assign each window a label; write directly on floor plans. Develop your own method that makes sense to you, stay consistent.

Example



Preservation and Maintenance of Wood Windows: CONDITION ASSESSMENT

Key	Level of Maintenance Needed 0 = none, 1 = little, 2 = a lot / through cell = in progress X through cell = complete	Instructions	Fill in Condition Assessment beginning with data from the floor plan sketch and measurements.					
		Example						
	Room	Kitchen						
	Assignment	1st 1						
	Dimensions	36”w x 60”h						
Bottom Sash	**Bottom Rail**	~~2~~						
	Stiles	0						
	Meeting Rail	0						
	Muntins (if applicable)	0						
	Glazing Putty	~~2~~						
	Glass Panes	~~1~~						
Top Sash	**Meeting Rail**	0						
	Stiles	0						
	Top Rail	0						
	Muntins (if applicable)	0						
	Glazing Putty	~~2~~						
	Glass Panes	0						
Jamb	**Sill, Apron, Stool**	~~2~~						
	Interior Casing and Stops	~~1~~						
	Center Stops	~~1~~						
	Weight Pockets	~~1~~						
	Pulleys, Ropes/Chain, Weights	~~2~~						
	Blind Stops	~~1~~						
Other	**Lock, Other Hardware**	1						
	Weatherstripping	2						

It is a good idea to take photographs and label with assignment to use as a reference.

Preservation and Maintenance of Wood Windows: TOOLS & SUPPLIES

The intended use for this document is to be used as a reference when planning specifically for your own project. We are not endorsing brand names shown. Images were extracted from the internet through a variety of sources; we make no claim to their copyrights.

SAFETY

Lead Protection tools & supplies-(Reference EPA webpage for current Lead-Safe practices)

Gloves-disposable vinyl 

Gloves-pair of leather/heavy 

Masks 

Respirator 

Pair of no-fog safety glasses 

Water-filled spray bottle 

TOOLS

Vice grips 

Sandpaper, 120-grit

Utility knife 

Extra blades 

Paint removal method(s):

Heat  ; Infrared  ; Steam  ; Non-caustic  ; Planer 

Carbide scraper 

Multiple profiles 

Putty knives, variety of stiff to flexible blades 

Chisel 

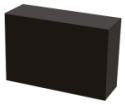
Gasket scraper 

Paint brush(s) 

Hand broom 

Razor scraper 

Extra blades 

Rubber block 

Rubber mallet 

Clamps 

String

TOOLS OPTIONAL

Sheet metal tool 

Oil feed glass cutting tool 

Grinding wheel (to sharpen tools) 

Preservation and Maintenance of Wood Windows: TOOLBOXES & WORKSTATIONS

This supplement is in development and will be loaded to RestoreMichiana.com upon completion

TOOLBOXES	WORKSTATIONS
Regarding the organization of Tools and Supplies, group materials that will be used together for certain steps and store in separate portable tool boxes. For example: Materials used to remove sashes is not the same group of materials used to re-assemble the window so store the groups of materials separately for convenience.	The same can be said for setting up workshop space. As you proceed through your preservation and maintenance project, you will find that many of the steps can happen consecutively. For example: While glazing needs time in the workshop to skin over before applying the final finish coat, work can proceed on the jamb on-site. Put thought into designating work stations for different types of work. For example: A station for removing finish and old glazing putty (a messy step) and a second station for reinstalling the glass (a clean step).

Preservation and Maintenance of Wood Windows: ESTIMATES - QUANTITY & COST

The intended use of this document is to be used as a guideline for estimating the quantity of supplies/services as well as a guideline for estimating the costs of supplies/services. Any prices listed here are subject to vary, only intended to be used as a reference when estimating specifically for your own project. We are not endorsing brand names or merchants noted.

QUANTITY - SUPPLIES/SERVICES	COST - SUPPLIES/SERVICES
Window Restoration Expert A quote	Priceless
Paint removal Depending on chosen method(s) of removal, a cost will be realized for the initial product purchase.	Ranging from about $600 for an infrared heater to about $20 per gallon of non-caustic chemical. A heat gun is economical at $50.
Glass 1. New – 24" x 24" 2. Salvage (preferred) – 1/16" for average residential windows.	1. $12.50 – hardware store 2. beginning at $5 – HPC
Boiled linseed oil 1 quart	$8 – hardware store
Putty Knife ½" chisel style	$7 – hardware store
Glazing points Calculate your needs before shopping. 60 pack	$2 – hardware store
Glazing putty Buy only as much as you need. Rule of thumb is that it will take ½ pints per sash. 1. Sarco Multi-Glaze Type M – 5 pound bag (VCR tape size) estimated to cover 2 windows. 2. DAP 33 – 1 quart	1. $20 – Smith Restoration Sash online 2. $7 – hardware store
Sash primer – Interior and Exterior Zinsser Bulls Eye 123 – 1 quart	$10 – hardware store
Sash finish – Exterior Behr satin enamel exterior paint	$28 – hardware store
Sash finish – Interior Glidden trim interior/exterior – 1 quart	$20 – hardware store
Jamb primer Zinsser Bulls Eye 123 – 1 quart	$10 – hardware store
Jamb Paint Glidden trim interior/exterior – 1 quart	$20 – hardware store
Pulleys 1. Salvage 2. Salvage	1. Habitat for Humanity Restore – $3 2. House of Antique Hardware – $4
Center Parting Stop Rip 2 x 4s. (1) 2 x 4 = 5 stops	$2

Rope Cord Measure window height from bottom of jamb to top of pulley, add one foot for knot tying; double the measurement to include both sides. 1. Cotton with a high tenacity nylon core – 50' 2. Samson Spot Cord #6 (3/16" thick) strength 700 pounds #7 (7/32" thick) strength 830 pounds #8 (1/4" thick) strength 1000 pounds	1. $6 – hardware store 2. $10 – Boston Building Resources online
Sash Chain Options include: Steel (brass, nickel, copper, zinc plated) Solid Bronze Solid Brass Stainless Steel	$1.39/ft. – hardware store or $71/100 ft. Home Depot $200/100ft. – Boston Building Resources online
Weights 1. Salvage 2. New	1. beginning at $5 – HPC 2. beginning at $15 – WindowWeights.com
Epoxy Before application, ensure 8 – 12 % moisture. 1. Abatron two– part 2. Minwax two-part 3. Dunham's water putty	1. beginning at $70 – Abatron online 2. $13 – hardware store 3. $15 – hardware store
Weather stripping methods 1. Woven pile 2. Metal jamb liner 3. Spring bronze 4. Vinyl bulb	
Tack Nails	

Preservation and Maintenance of Wood Windows: HOW STEP-BY-STEP OVERVIEW

STEP 1) HOW TO REMOVE THE BOTTOM SASH **(ON-SITE)**
1a. Remove the interior stops
1b. Remove the bottom sash

STEP 2) HOW TO REMOVE THE TOP SASH **(ON-SITE)**
2a. Free the top sash
2b. Remove the center parting stops
2c. Remove the top sash

STEP 3) HOW TO PREPARE SASHES FOR NEW FINISH AND GLAZING **(WORKSHOP)**
3a. Free the glass
3b. Remove old finish from sashes
3c. Make necessary wood repairs
3d. Prepare the rabbet
3e. Prime the sash (interior and exterior)
3f. Apply the first finish coat (interior and exterior)

STEP 4) HOW TO REINSTALL THE GLASS **(WORKSHOP)**
4a. Cutting glass
4b. Prepare the glazing
4c. Bed the glass
4d. Insert glazing points
4e. Glazing the face (outside)
4f. Glazing the back (inside)

STEP 5) HOW TO PREPARE FRAME COMPONENTS FOR REHANGING SASHES **(ON-SITE)**
5a. Remove old finish from frame components (jambs, head, sill, stool)
5b. Make necessary wood repairs
5c. Pulley maintenance
5d. Weight pocket maintenance
5e. Apply primer and finish to the frame
5f. Apply primer and finish to the stops

STEP 6) HOW TO FINISH THE SASH **(WORKSHOP)**
6a. Apply the final finish coat (interior and exterior)
6b. Sash hardware maintenance

STEP 7) HOW TO RE-ASSEMBLE THE WINDOW **(ON-SITE)**
7a. Prepare new sash ropes
7b. Re-install the weights with new sash ropes
7c. Re-install the top sash
7d. Re-install the parting stops
7e. Re-install the bottom sash
7f. Re-install the interior stops

Preservation and Maintenance of Wood Windows: PHOTO PROGRESSION

BEFORE

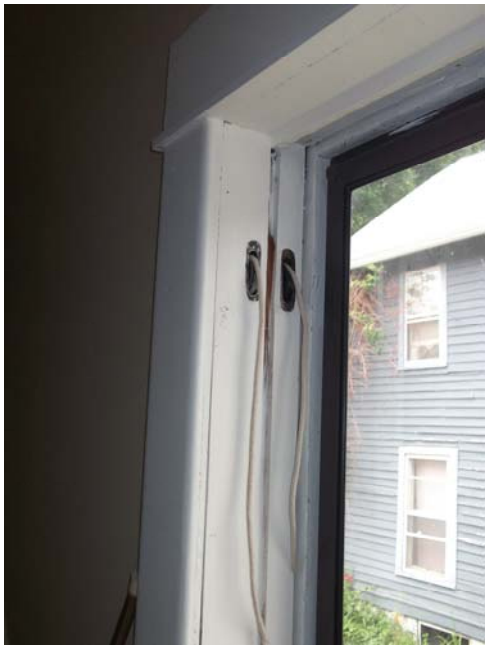
AFTER

TOP SASH DETAIL

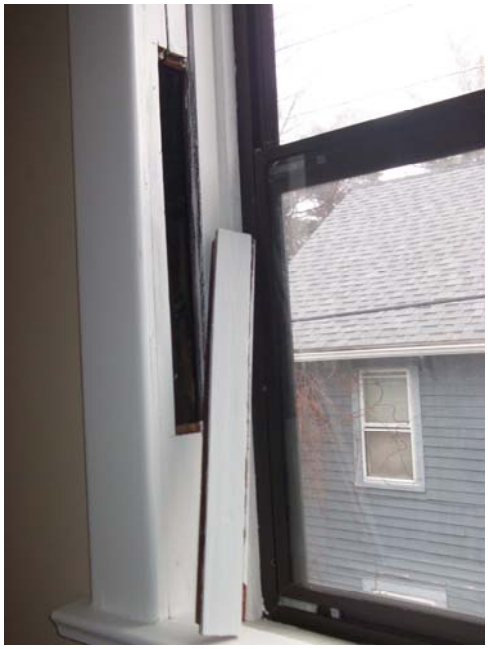
TOP SASH IN PROGRESS

BOTTOM SASH DETAIL

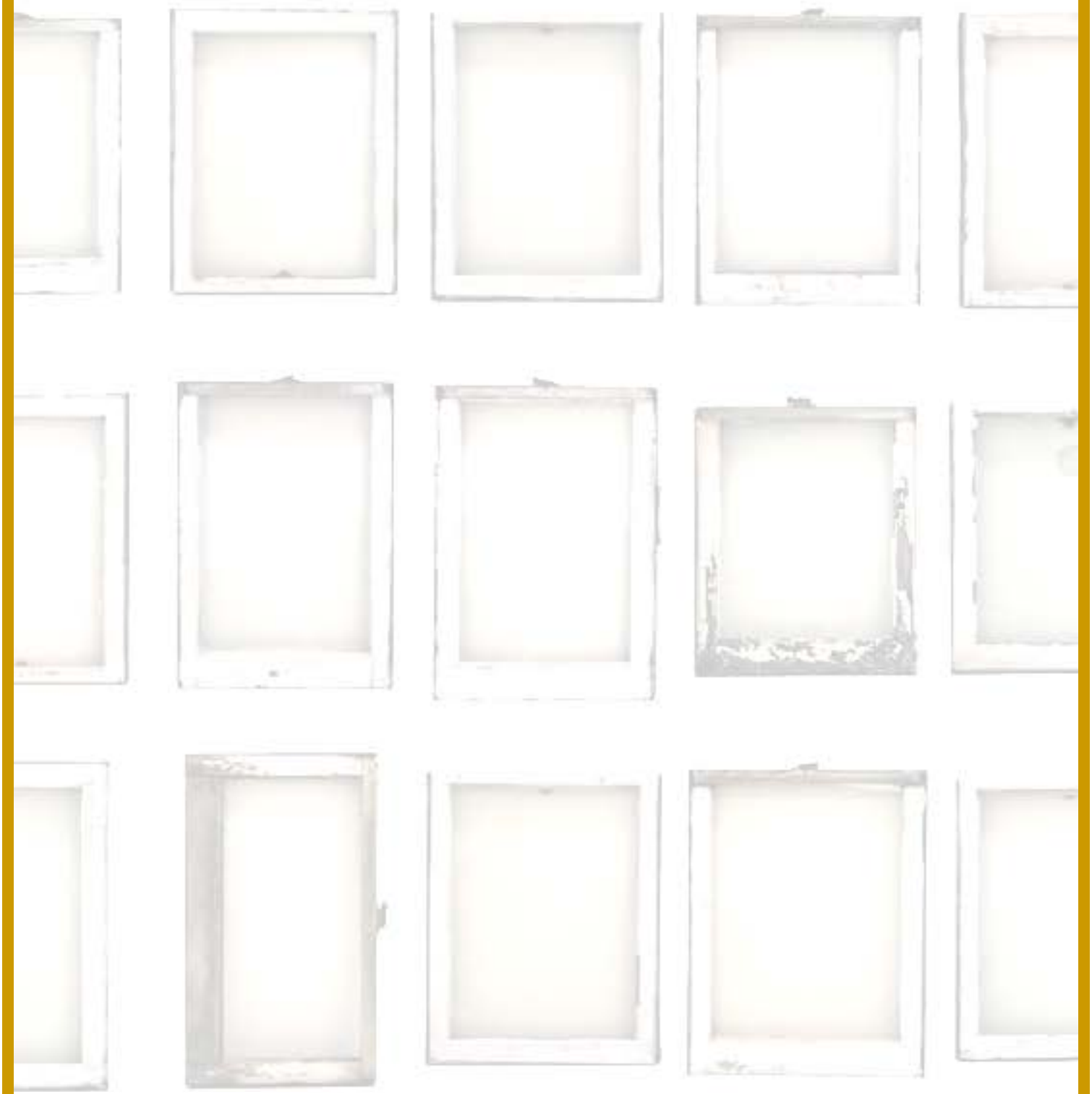
BOTTOM SASH IN PROGRESS



NEW SASH ROPE



WEIGHT POCKET



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