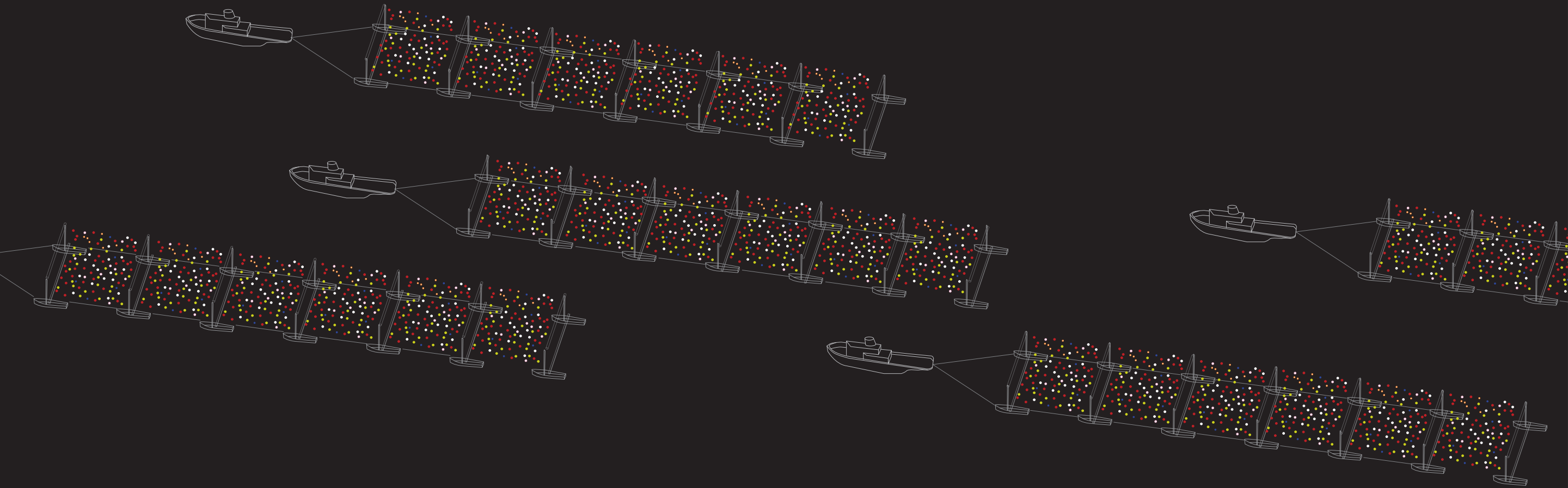




June 2013 concept



THE INSTALLATION: FLOATING LIT-PINWHEELS  
ALONG THE CHICAGO RIVER DURING THE FESTIVAL



# PINWHEEL TIMELINE AND AFTERLIFE

**PINWHEELS PRODUCTION**- pinwheel production at the community, with the community

**THE INDIVIDUAL AND THE COMMUNITY** Community pinwheel sheet assembly

**INSTALLATION ASSEMBLY**- The pinwheel sheets are collected for festival installation

**LIGHT, FIRE AND PINWHEELS** - The pinwheels are hung on rafts, lit and float along the river procession

**PINWHEEL EXHIBITION**- Post Festival- sheets are displayed around the city

**SPREADING THE WISHES**- pinwheels are distributed to the public, and spread, with the wishes, across the city



# Fireflowers

1

FLOWERS

Cali and Takuya

2

FRAME

Michael

3

ATTACHMENT

Rachel

4

TECHNOLOGY

James

5

STRATEGY

Tara

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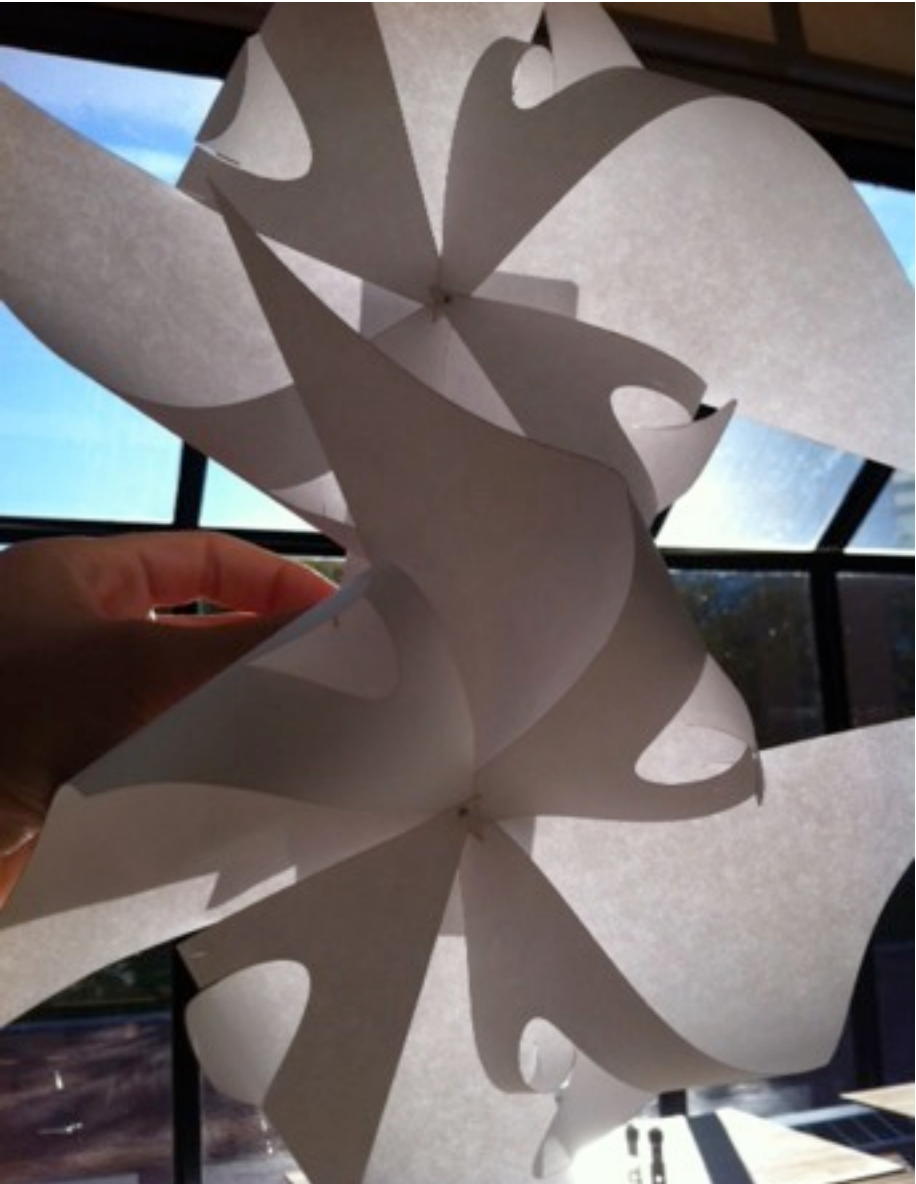
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TESTING GEOMETRIES/ GEOMETRICAL STRATEGIES



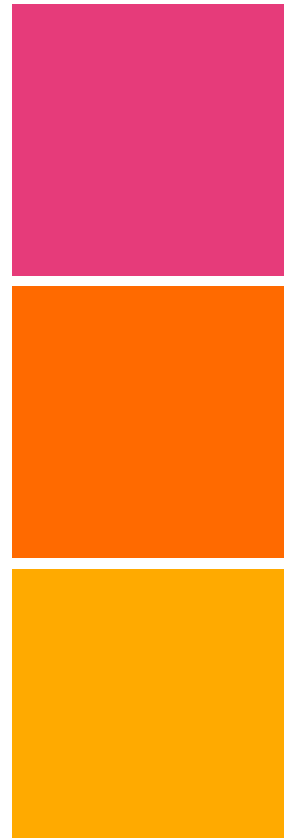
## MATERIAL THOUGHTS

Focusing on Mylar and Yupo- both are forms of synthetic papers.

**Mylar** is a type of polyester (polyethylene terephthalate) and **Yupo** is made from polypropylene pellets

## COLOR THOUGHTS (AND COLOR CODING)

image: Ball Noughes and Nastasi, MOMA PSI





## THE INDIVIDUAL AND THE COLLECTIVE IN THE FIREFLOWERS FIELD

Reference: The Wind Portal- Najla El Zein <http://gizmodo.com/this-wall-of-paper-pinwheels-turns-air-into-art-1426812700>



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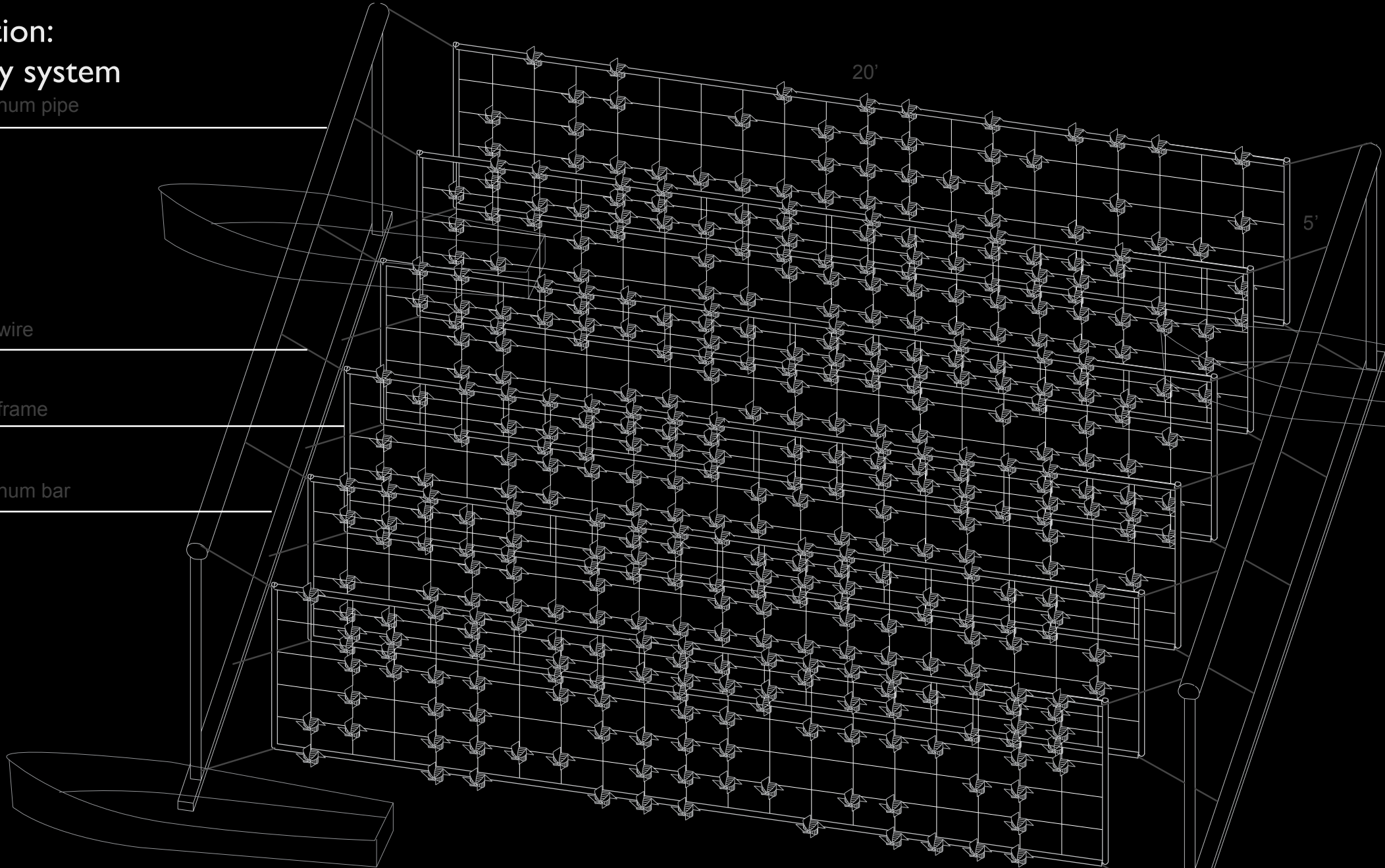
# The Frame as the solution: An assembly and display system

aluminum pipe

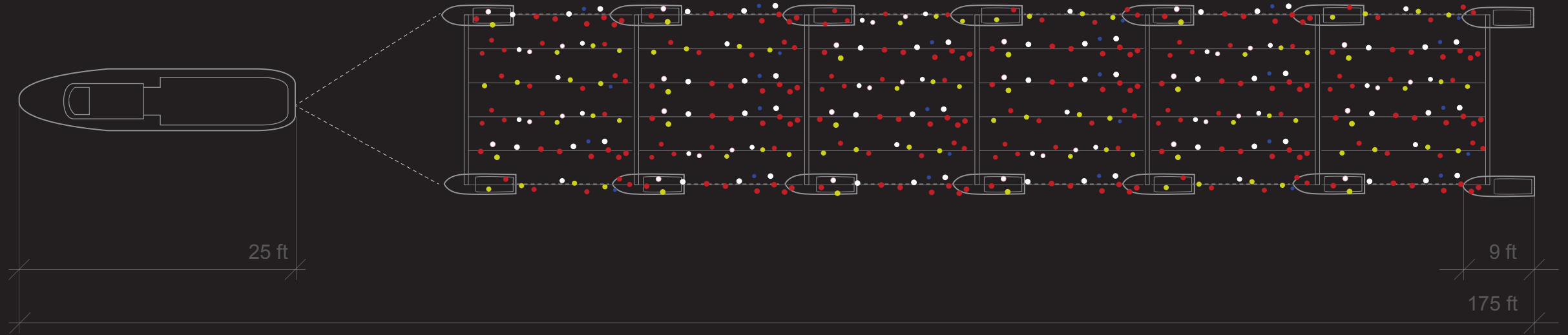
steel wire

steel frame

aluminum bar



# RAFT PLAN



- 1 tugboat
- 12 sailboats
- 36 pinwheel sails
- 200 pinwheels per sail
- 7,200 pinwheels per raft

create your very own

*pinwheel*

to celebrate the

**CHICAGO  
FIRE  
FESTIVAL**



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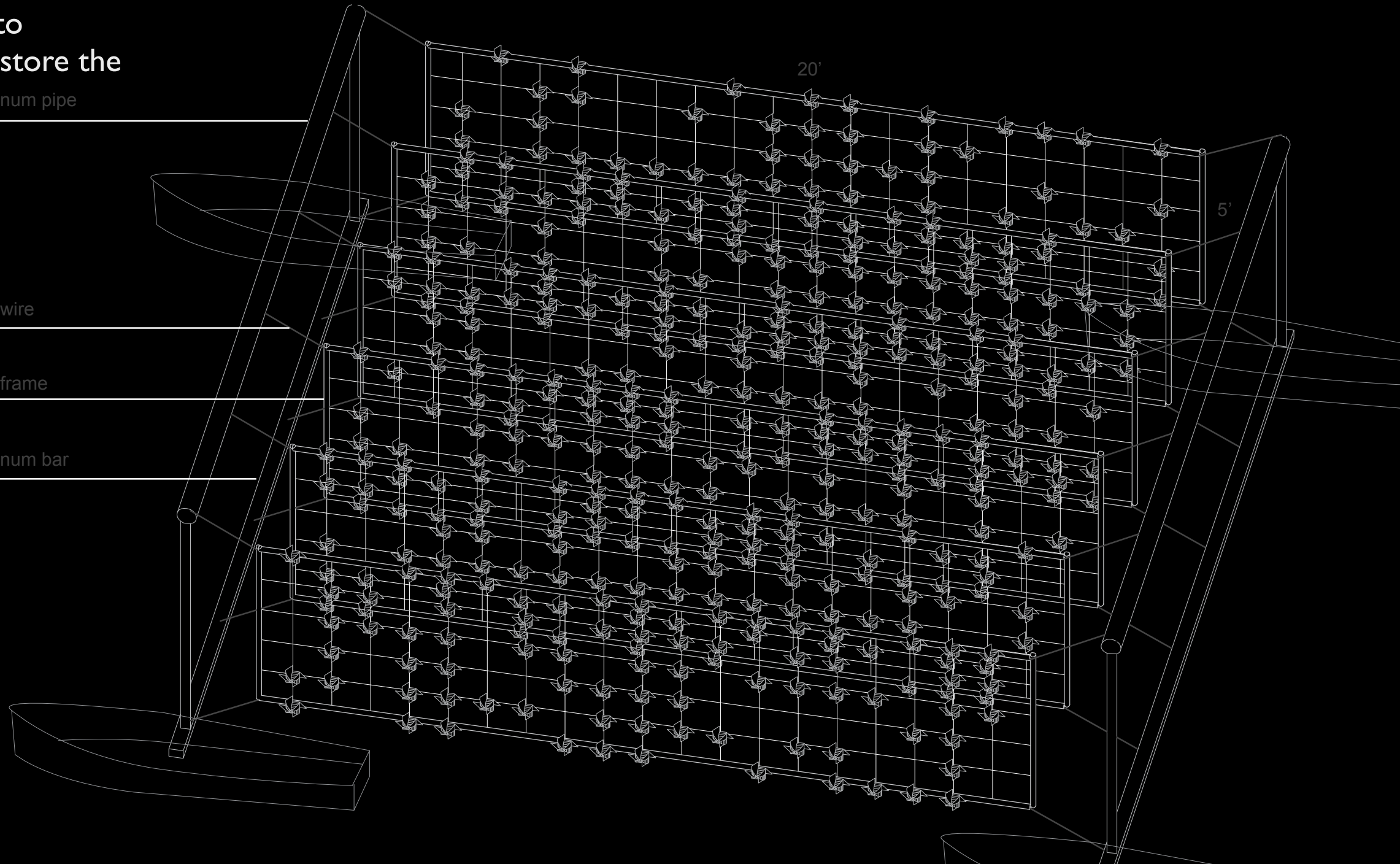
# Attachment as a way to collect, assemble, and store the pinwheels

aluminum pipe

steel wire

steel frame

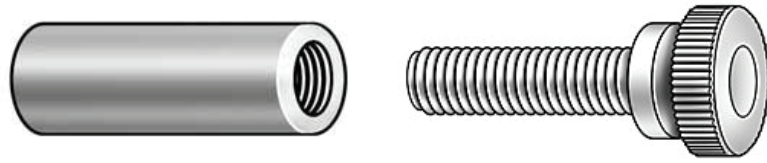
aluminum bar



SPREADING THE WISHES.







Nylon Round Standoff and thumbscrew  
 white  
 6-32 internal screw threading that is 3/8" deep on each end  
 1/4" OD  
 1\_1/2 long  
 Thumb screw with 6-32 threading, 3/8" deep

Sourcing: Grainger or McMaster (may be able to find cheaper from original manufacturer): (\$0.43 - \$0.72 each x 5000 pieces = \$2,150 - \$3,600) + (\$0.21 each screw x 5000 = \$1,050) = \$4650

Assembly: Would need to screw on to something and also have a cap screwed into in (not great for little hands, would require tools for assembly). Would need to have a male threaded attachment as a part of the frame (or an additional threaded fastener to attach the standoff to the frame). After assembled, could be disassembled. These are not designed to necessarily work with pinwheels. Need cap as a separate part (added cost).

(PET?) Pinwheel parts, from a supplier of custom pinwheels  
 Different color options

Sourcing: Alibaba: (\$0.10 - \$0.20 each x 5000 pieces = \$500 - \$1,000) Minimum order or 10,000 doubles the cost to \$1,000 - \$2,000) Can only buy the entire kit (waste of the other provided pinwheels, but we could have something custom printed on those for the festival and intersperse them with the ones we make, in case there are not enough made by participants.)

Assembly: Cap snaps on. We'd need to have a post as a part of the frame for the pinwheel to mount to, else we'd need to modify each part to fit to our frame, somehow. These are designed to work with pinwheels whereas the above standoff option is not. We'd have to work with their hole size as the hole size for our pinwheels.



DIY Pinwheel Kit that comes with paper pinwheels  
 Different colors

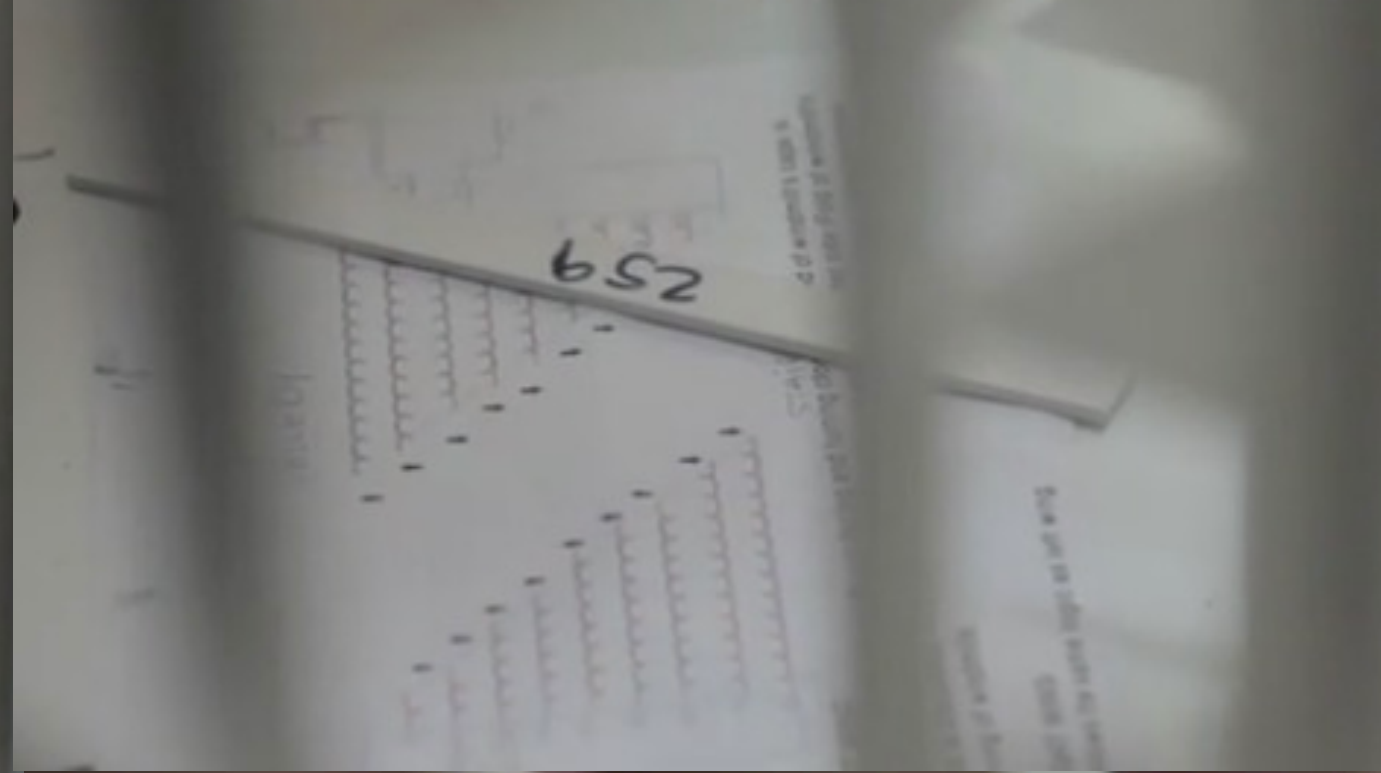
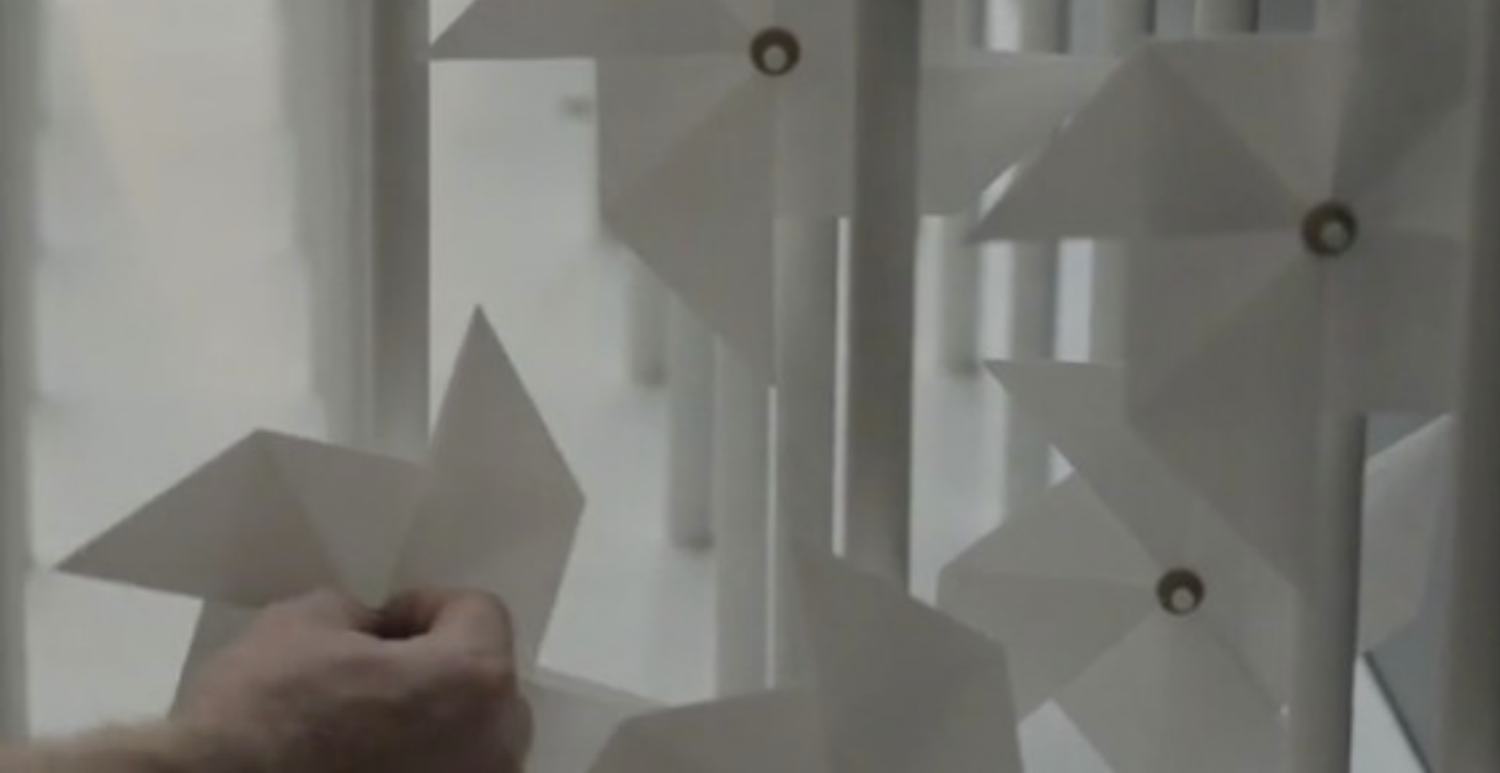
Sourcing: orientaltrading.com (\$5.25+ / 24, \$0.25 each x 5000 = \$1250)

Assembly: Cap snaps on. We'd need to have a post as a part of the frame for the pin to mount to, else we'd need to modify each part to fit to our frame, somehow. These are designed to work with pinwheels. We'd have to work with their hole size. Minimal paper cap may not be sufficient for our long-term exterior application. The paper pinwheels as a part of the kit could be used by participants if the digital thing doesn't pan out... (a back-up plan)



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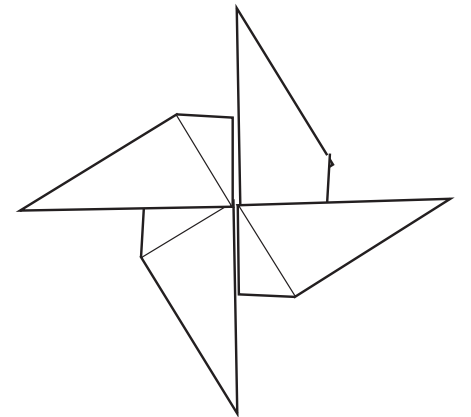
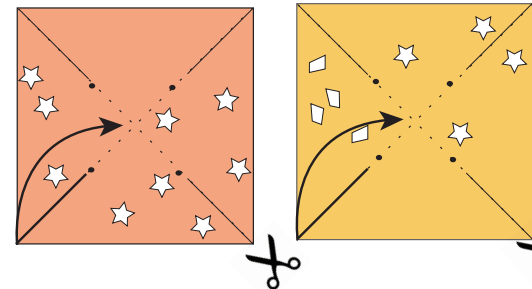
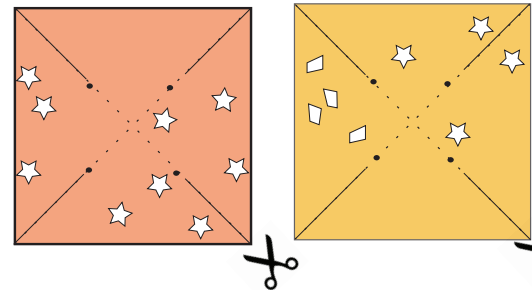
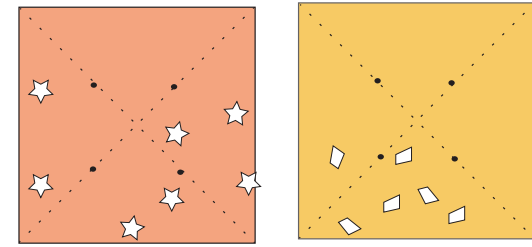
5

STRATEGY

Tara

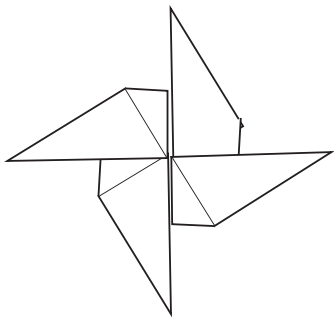
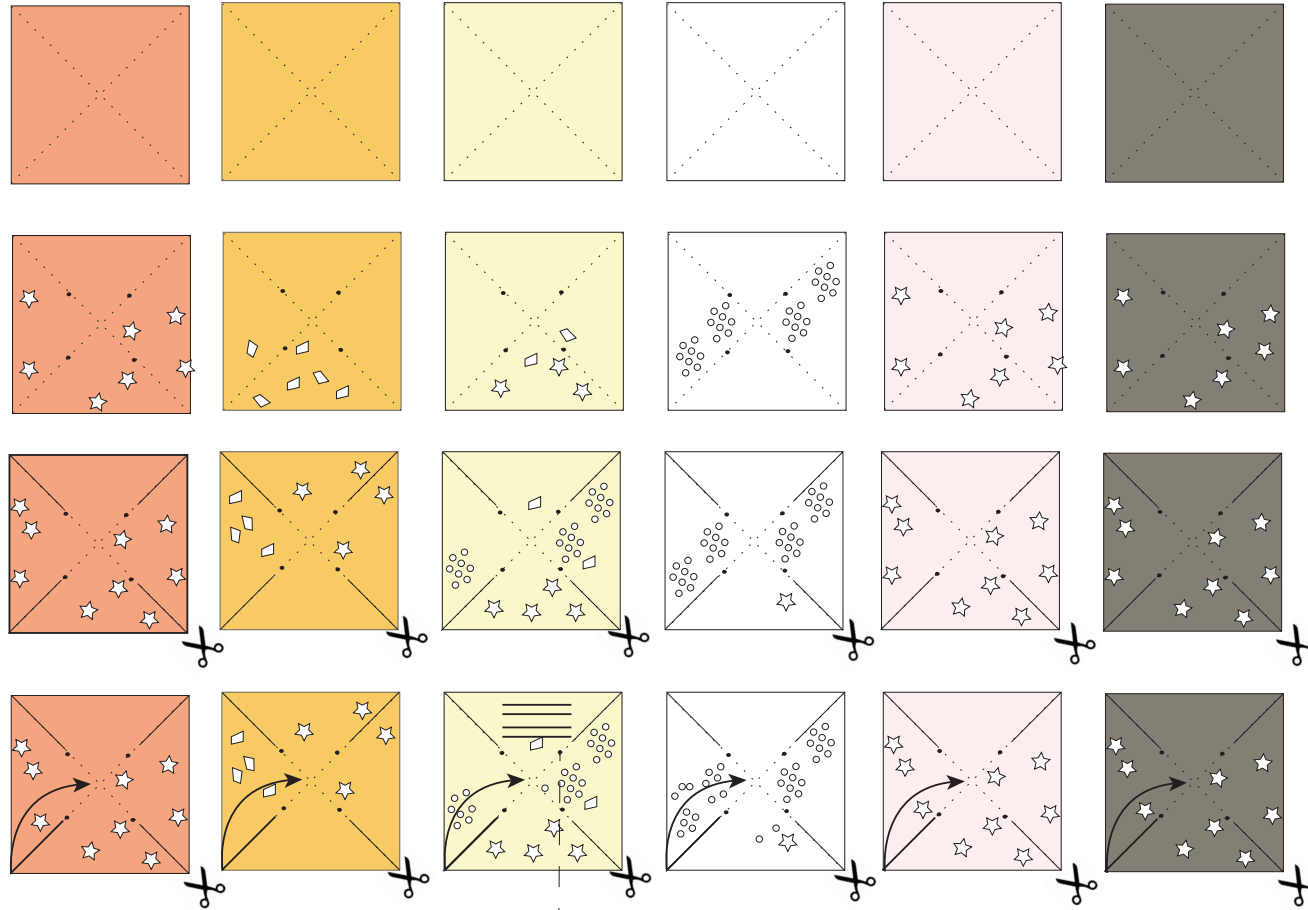
# Pinwheel making: A collaborative digital fabrication workshop

1. A **Redmoon**/ Harvard GSD team member arrives at the school with colorful water resistant paper, ipads and a laser cutter.
2. Each participant **designs** a single pinwheel: choosing a template, a color, and a wish to inscribe on it.
3. The pinwheel is then **laser cut** from the paper-sheet with the wish perforated on it by the laser-cutter
4. The participant **folds** the pinwheel to its shape and buttons it onto a collective sheet of pinwheels created by the community.
5. Pinwheel sheets are **collected** from all over the city and assembled onto rafts for the festival installation.



# PINWHEEL PRODUCTION

PINWHEEL ASSEMBLY  
CUT/LASER, PERSONALIZE + FOLD



COLOR PALETTE PRE-DETERMINED  
TO REINFORCE FIRE THEME

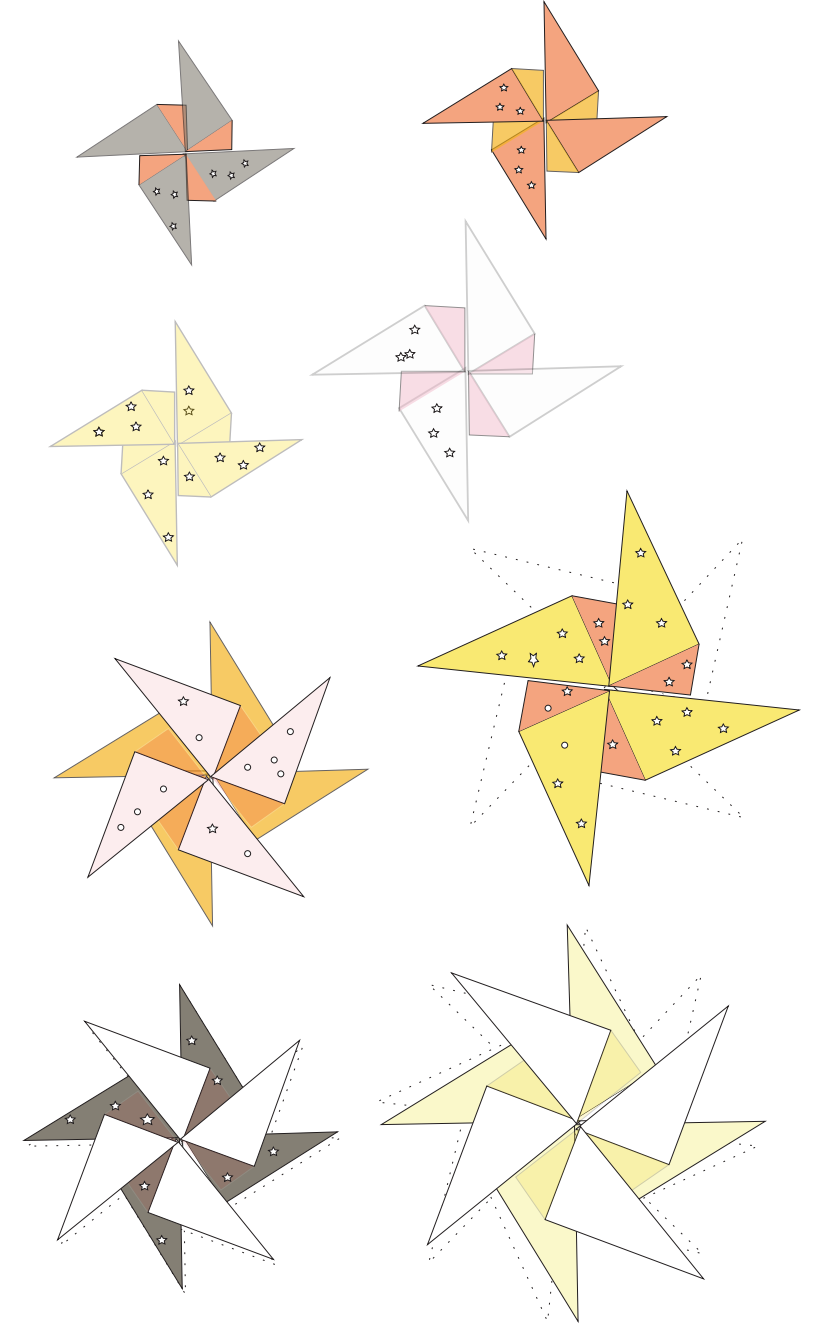
community's wishes are inscribed individually on pinwheels

"my wish for chicago is....."

"when I grow up I want to be ....."

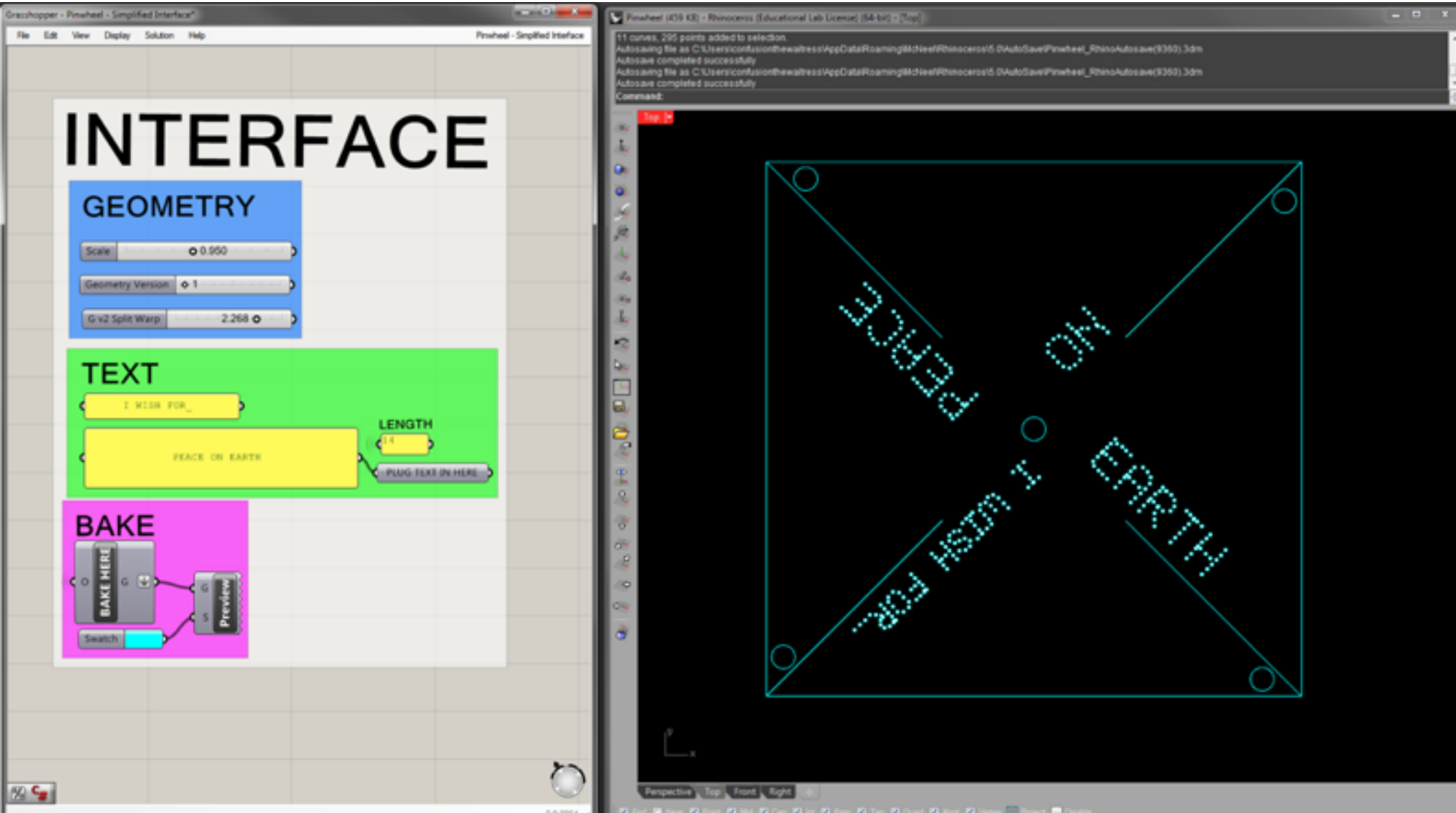
"I wish that there were less gun violence in Chicago"

form is either fastened singularly  
or back-to-back



# PINWHEEL

PRODUCTION- the customization process and scripting



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?					
Item	Description	Unit Cost	Qty	Estimated Total Cost	Notes
<b>Materials</b>					
Mylar/Yupo	Pinwheels, cut to size; approx 5 pin wheels per sheet	5.5	1500	8250	There are possibilities to receive donation of materials. There will still be cutting costs for tailoring sheets to the size of the laser bed.
Fastenings	Custom design printed in 3d or manufactured after prototype is produced	10	50	500	100 fasteners per bag
Pinwheel stick	for distribution to the public upon project completion	0.5	6000	3000	
Metal Frame	Assuming a frame holds 100 pinwheels, with lighting fixtures along the frame	200	50	10000	
Lighting				0	Rental fees
Miscellaneous tools		800	1	800	Weights, screws, nails
<b>Fabrication</b>					
Laser Cutters	Would be donated or rented for the project	2000	10	20000	Rental cost
Miscellaneous		300	1	300	Tape, test paper
Software interface development	for adapting the grasshopper scripts to a user interface the community could use	3500	1	3500	This is an estimated need at this point, it might change as we finalize the scripting
Computers/ipads	to be used by community members during workshops; assuming 10 ipads each workshop	800	10	8000	Estimated rental costs
<b>Transport</b>					
Transport Laser cutter	Assuming 200 workshops; with pinwheels transported on return trip to warehouse	120	400	48000	
Transport pinwheels to final venue	Assuming 5 loads needed; to and return	200	10	2000	
Transport for site recce, workshop coordination		800	1	800	
Manpower	Assuming 3 hours per workshop, and 5 assistants per workshop; \$7 per hour	105	200	21000	



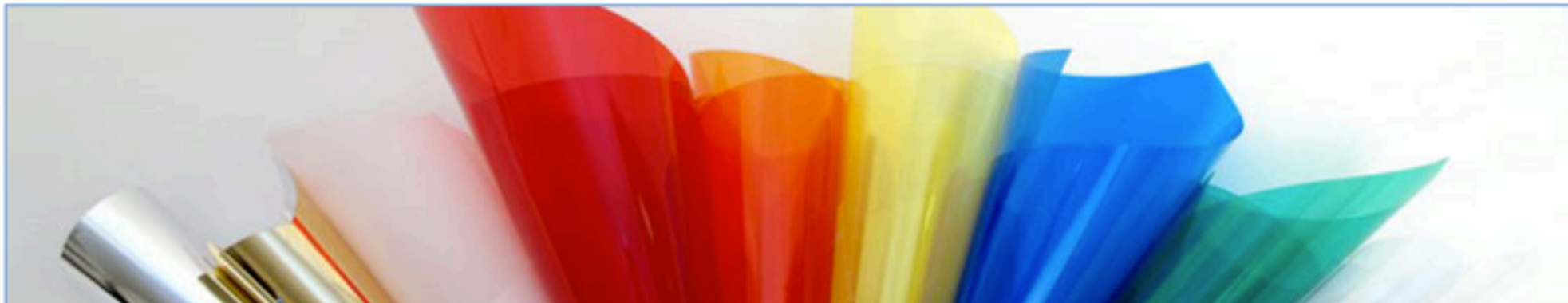
Manpower for final installation	moving and installation; assuming 6 people	7	120	840	
				0	
<b>Storage</b>				0	
Warehouse for pinwheels	storage for 6 months	800	6	4800	
Installation costs	Mounting frames onto bridges along the Chicago River	7	120	840	
Barges?	For mounting and floating frames along the river	12000	1	12000	
Insurance	Safety, fire	3500	1	3500	
<b>Estimated Subtotal</b>				<b>148130</b>	
10% Miscellaneous				14813	
<b>Estimated Total</b>				<b>162943</b>	

# Materials -donation?

[http://www.grafixarts.com/home\\_article\\_pages/  
General Frequently Asked Questions](http://www.grafixarts.com/home_article_pages/General_Frequently_Asked_Questions)



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# Laser cutters-donations?

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Epilogue (<http://www.epiloglaser.com>)



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Laser Engraving

Laser



CO2 Laser Engraving & Laser Cutting Systems

FiberMark Metal Engraving & Plastic Marking System

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Engrave barcodes, serial numbers & logos on bare metal and mark plastic

