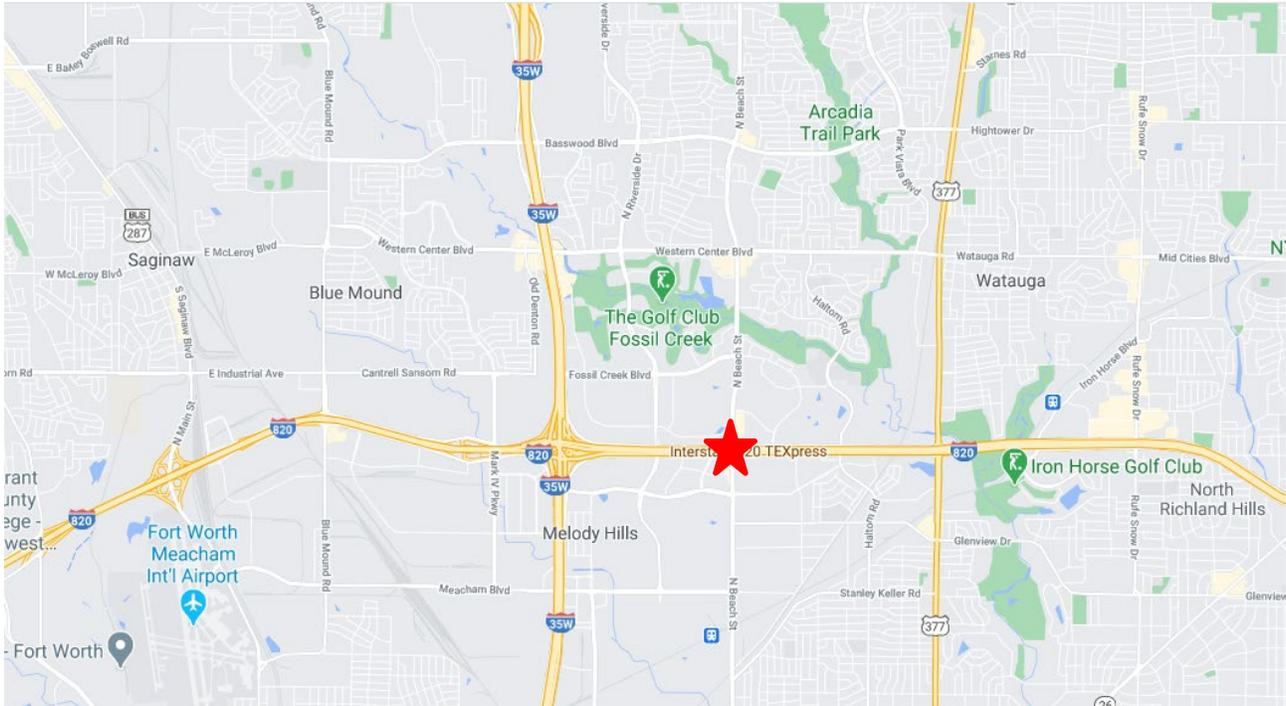


N. Beach/820 Underpass Public Art Project

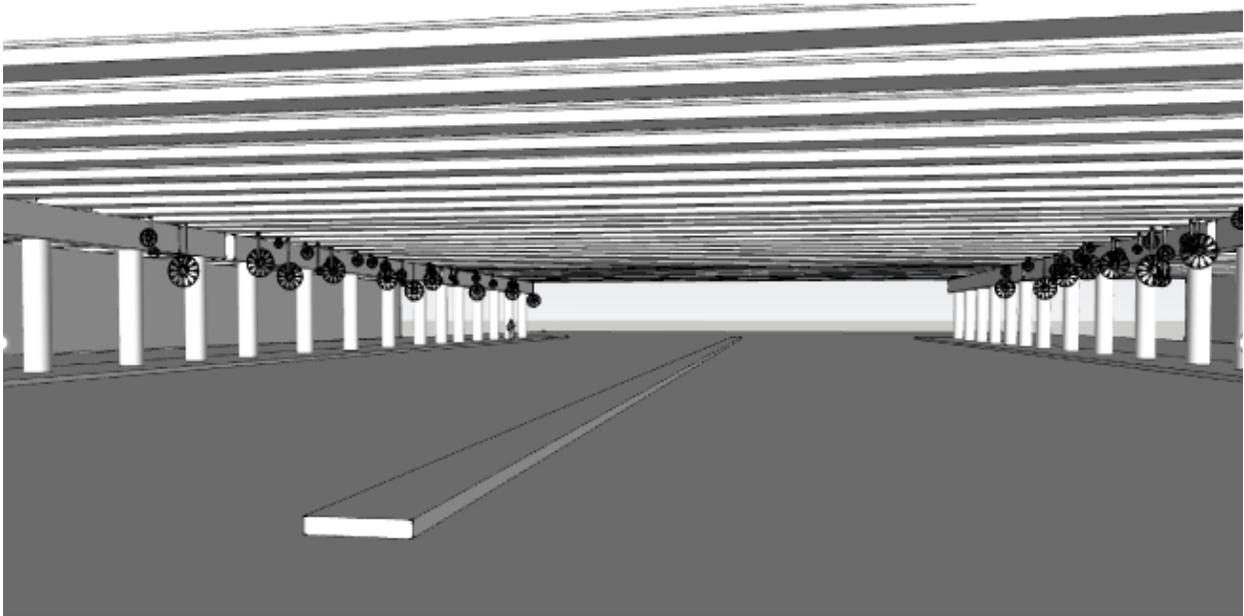
Site: Intersection of N. Beach Street and I-820, Fort Worth, Texas 76137



Narrative Description

As a playful reference to Texas' ubiquitous windmills, this installation transforms the N. Beach/820 Underpass space by creating an animated, colorful visual experience for motorist and pedestrian passersby. The artist-design wheels made with bicycle components include eight (8) sail patterns – based on wheel diameter – which will be covered on front and back with reflective traffic sheeting typically used in a traffic environment on road signage. This will allow the wheels to appear to be emitting light as one approaches them. A custom color palette of eight (8) bright colors was developed for this artwork, none of which typically occur in a traffic setting. Each wheel was assigned two related colors - one color applied to the front of the sails, the other to the back. In addition, each wheel will receive a sheet metal ring around the rim, varying in width, to further its visual impact. The colonnades will be painted a light gray to create an artwork zone and extend the overall work's impact.

Final Design Images



Overall Design Layout



Design Rendering, East Colonnade

Large Scale Wheel Makeup and Patterns (48" and 52" in Diameter by Standard Highwheels)

Details: Wheel rims: aluminum alloy; Spokes: stainless steel 2,0mm; Nipples: nickel plated brass; Hubs: chrome plated SAE510 steel; Bearings: cartridge bearings 6203, 17x40x12mm, quality P6Z4
 Sail patterns: 18 gauge aluminum sheets (0.04") attached to the spokes with tabs and rivets
 Color: 3M Diamond Grade DG3 #4090, digitally printed with custom colors.

SM Sterling Machine Locknuts, Inc.
 1114 S. 4th Street
 Ft. Worth, Texas 76102
 817-335-2200
 FAX 817-335-2201
 www.sml.com

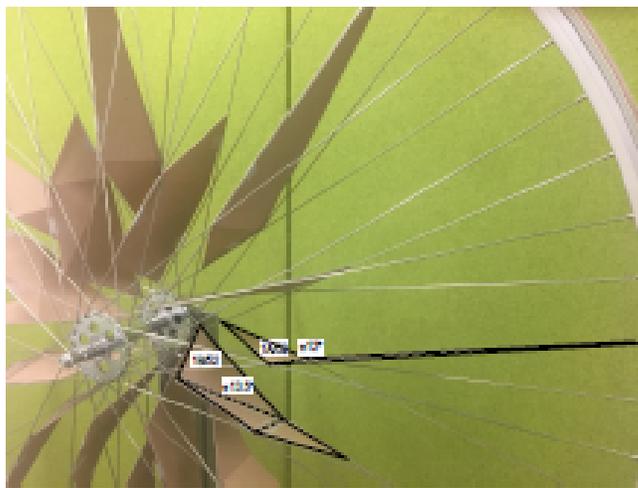
52" NOMINAL WHEEL, 4" RIM RING ATTACHED TO RIM

IN STRUCTURAL MODELS OF THIS FRAMESET AND OTHERS, IT IS RECOMMENDED TO USE THE STRONGER CALCULATED AND NOT NEAREST AVAILABLE SIZE RIVETS TO AVOID STRESS CONCENTRATIONS

WHEELS WILL RECEIVE ALUMINUM "SAILS" TO ACT AS WIND WHEELS:

- SAILS TO BE MADE FROM 18-GAUGE ALUMINUM
- ONE OR TWO BENDS AS INDICATED TO FIT SPOKE GEOMETRY
- SAILS ATTACHED TO SPOKES WITH TABS TO BE BENT AROUND SPOKES
- RIVETS SECURE TABS AND HOLD SAIL IN PLACE
- VERIFY PRECISE SAIL GEOMETRY & BEND LINES ON MOCK-UP BEFORE PRODUCTION
- FRONT AND BACK OF SAILS COVERED BY REFLECTIVE TRAFFIC FILM, SEE COLOR CHART

APPROX. LOCATIONS OF SAILS ON WHEEL
 1" - 1'-0"



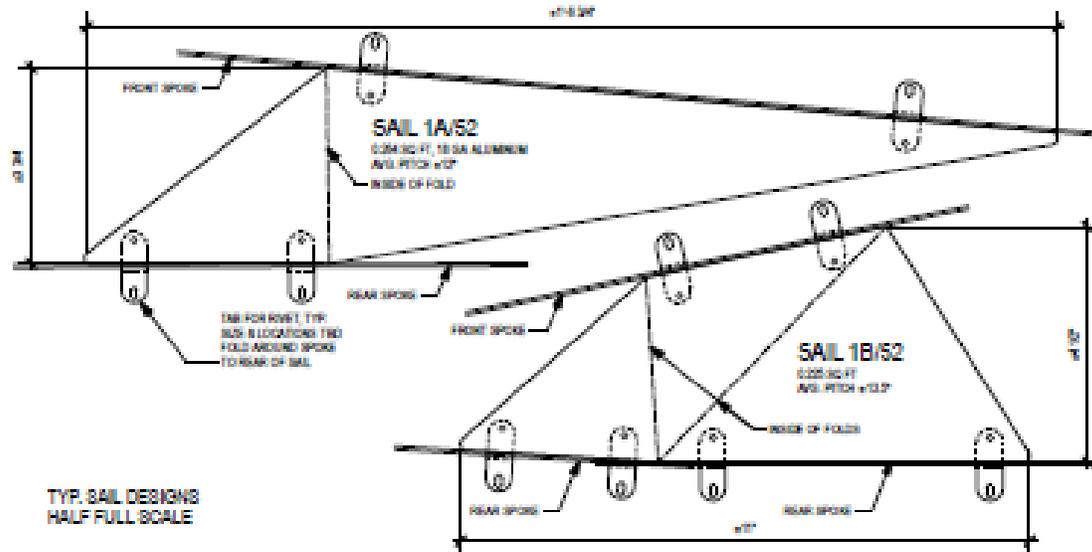
SAIL DESIGN #1/52
 FOR 52" WHEEL

8 SAILS 1A/52:
 COMBINED SAIL AREA 2.12 SQ FT @ ±12° AVG. PITCH
 8 SAILS 1B/52:
 COMBINED SAIL AREA 1.80 SQ FT @ ±13.8° AVG. PITCH

PITCH 0° MEANS PARALLEL TO DIRECTION OF WHEEL AXIS
 PITCH 90° MEANS PERPENDICULAR TO DIRECTION OF WHEEL AXIS = PARALLEL TO WHEEL FACE

OCCURS 2 TIMES - POSITIONS #33, 34

REFERENCE IMAGE SHOWING AVERAGE PITCH OF EACH SAIL NO SCALE





12" NOMINAL WHEEL, 1" RIBS AND ATTACHED TO RIB

WHEELS WILL RECEIVE ALUMINUM "SAILS" TO ACT AS WIND WHEELS:

- SALES TO BE MADE FROM 18-GAUGE ALUMINUM
- ONE OR TWO BENDS AS INDICATED TO FIT SPOKE GEOMETRY
- SALES ATTACHED TO SPOKES WITH TABS TO BE BENT AROUND SPOKES
- RIVETS SECURE TABS AND HOLD SAIL IN PLACE
- VERIFY PRECISE SAIL GEOMETRY & BEND LINES ON MOCK-UP BEFORE PRODUCTION
- FRONT AND BACK OF SALES COVERED BY REFLECTIVE TRAFFIC FILM, SEE COLOR CHART

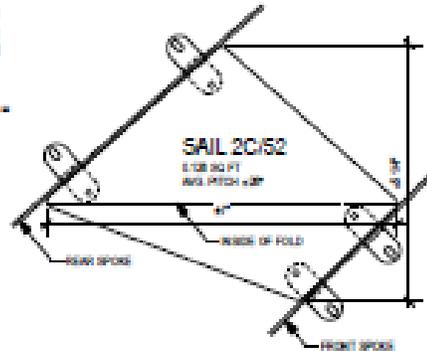
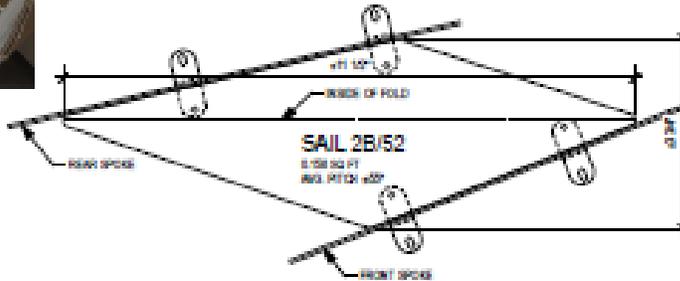
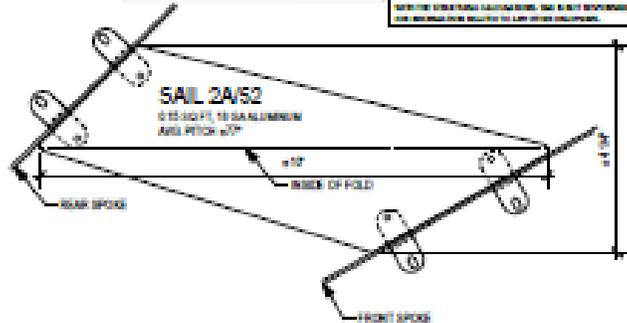
APPROX. LOCATIONS OF SALES ON WHEEL
1" - 1'-0"



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REFERENCE IMAGE SHOWING AVERAGE PITCH OF EACH SAIL NO SCALE



TYR SAIL DESIGNS
HALF FULL SCALE

SAIL DESIGN #2/52
FOR 52" WHEEL

8 SALES 2A/52: COMBINED SAIL AREA 1.25 SQ FT @ 47° AVG. PITCH
8 SALES 2B/52: COMBINED SAIL AREA 1.25 SQ FT @ 40° AVG. PITCH
8 SALES 2C/52: COMBINED SAIL AREA 1.02 SQ FT @ 47° AVG. PITCH

PITCH 0° MEANS PARALLEL TO DIRECTION OF WHEEL AXIS
PITCH 90° MEANS PERPENDICULAR TO DIRECTION OF WHEEL AXIS = PARALLEL TO WHEEL FACE

OCCURS 2 TIMES - POSITIONS #3, 14

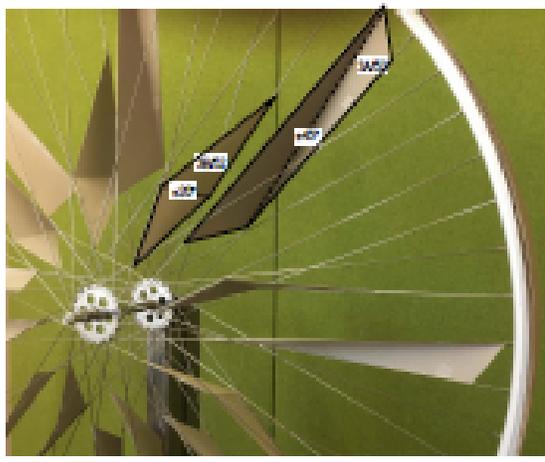


32" NOMINAL WHEEL, 2" WIDE RIMS ATTACHED TO RIM

THE STRUCTURAL INTEGRITY OF THIS FRAME MUST BE VERIFIED BY ANALYZING LOADS/STRESSORS AND APPLYING THE INFORMATION WITH THE STRUCTURAL ENGINEERING FOR A SIGNATURE AND STAMP FOR SEALS TO BE MADE TO MEET THESE REQUIREMENTS.

- WHEELS WILL RECEIVE ALUMINUM "SAILS" TO ACT AS WIND WHEELS:**
- SAILS TO BE MADE FROM 18 GAUGE ALUMINUM
 - ONE OR TWO BENDS AS INDICATED TO FIT SPOKE GEOMETRY
 - SAILS ATTACHED TO SPOKES WITH TABS TO BE BENT AROUND SPOKES
 - RIVETS SECURE TABS AND HOLD SAIL IN PLACE
 - VERIFY PRECISE SAIL GEOMETRY & BEND LINES ON MOCK-UP BEFORE PRODUCTION
 - FRONT AND BACK OF SAILS COVERED BY REFLECTIVE TRAFFIC FILM, SEE COLOR CHART

APPROX. LOCATIONS OF SAILS ON WHEEL
 1" - 1'-0"



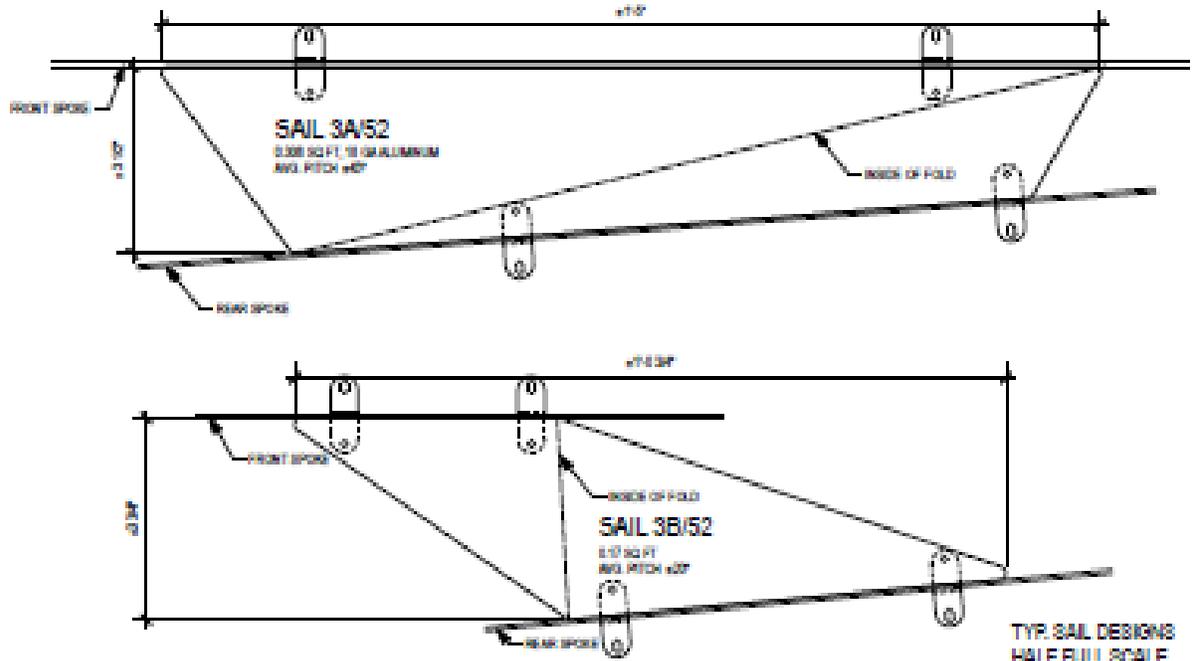
SAIL DESIGN #3/52
 FOR 32" WHEEL

8 SAILS 3A/52: COMBINED SAIL AREA 2.46 SQ FT @ ±42° AVG. PITCH
 8 SAILS 3B/52: COMBINED SAIL AREA 1.36 SQ FT @ ±27° AVG. PITCH

PITCH 0° MEANS PARALLEL TO DIRECTION OF WHEEL AXIS
 PITCH 90° MEANS PERPENDICULAR TO DIRECTION OF WHEEL AXIS = PARALLEL TO WHEEL FACE

OCCURS 2 TIMES - POSITIONS #1, 21

REFERENCE IMAGE SHOWING AVERAGE PITCH OF EACH SAIL NO SCALE



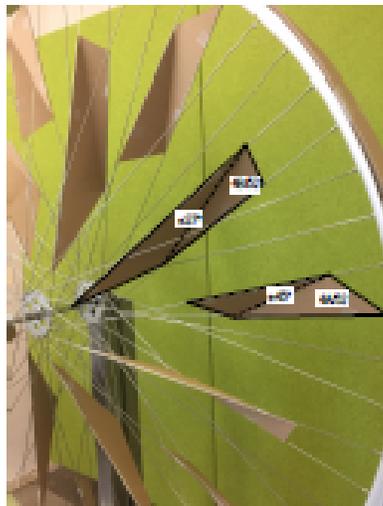
TYP. SAIL DESIGNS
 HALF FULL SCALE



52" DIAMETER WHEEL, 7" WIDE RIMS
ATTACHED TO RIMS

- WHEELS WILL RECEIVE ALUMINUM "SAILS" TO ACT AS WIND WHEELS:
- SAILS TO BE MADE FROM 18 GAUGE ALUMINUM
 - ONE OR TWO BENDS AS INDICATED TO FIT SPOKE GEOMETRY
 - SAILS ATTACHED TO SPOKES WITH TABS TO BE BENT AROUND SPOKES
 - RIVETS SECURE TABS AND HOLD SAIL IN PLACE
 - VERIFY PRECISE SAIL GEOMETRY & BEND LINES ON MOCK-UP BEFORE PRODUCTION
 - FRONT AND BACK OF SAILS COVERED BY REFLECTIVE TRAFFIC FILM, SEE COLOR CHART

APPROX. LOCATIONS OF SAILS
ON WHEEL
1" - 1'-0"



SAIL DESIGN #4/52 FOR 52" WHEEL

8 SAILS 4A/52: COMBINED SAIL AREA 1.23 SQ FT @ ±37° AVG. PITCH
8 SAILS 4B/52: COMBINED SAIL AREA 2.19 SQ FT @ ±48° AVG. PITCH

PITCH 0° MEANS PARALLEL TO DIRECTION OF WHEEL AXIS
PITCH 90° MEANS PERPENDICULAR TO DIRECTION OF WHEEL AXIS =
PARALLEL TO WHEEL FACE

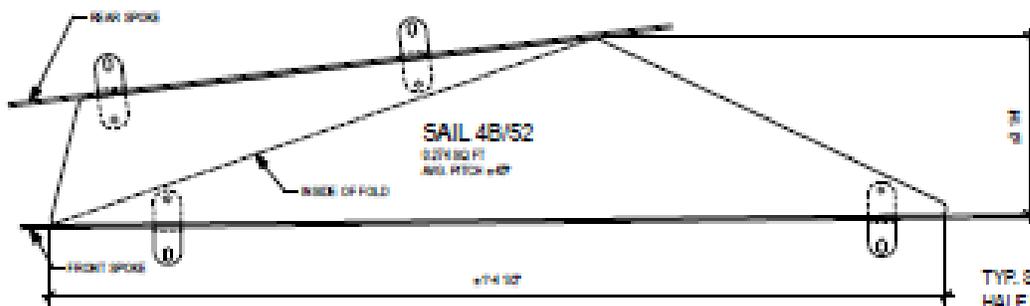
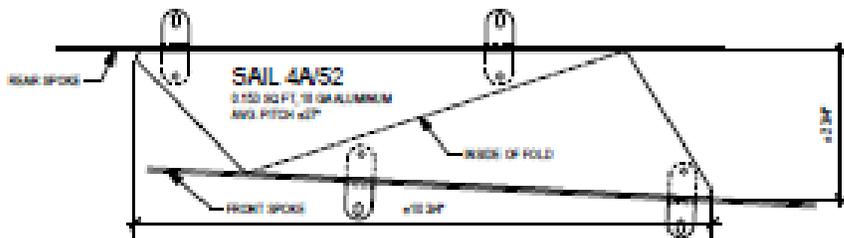
OCCURS 2 TIMES - POSITIONS #15, 43

REFERENCE IMAGE SHOWING AVERAGE
PITCH OF EACH SAIL NO SCALE



ALL PHYSICAL DELIVERIES OF THESE PLANS USE BEST EFFORTS
TO PREVENT DAMAGE AND LOSS, BUT CANNOT BE RESPONSIBLE
IF YOU DO NOT PROTECT THESE PLANS. SAILS & COPY RESPONSIBLE
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SML Sterling Associates, Inc.
1224 E. 7th Street
Ft. Worth, Texas 76102
817-499-2277
Fax: 817-499-2272
www.smlinc.com 2009-22



TYP. SAIL DESIGNS
HALF FULL SCALE

Wind[mills]
Public Art at the 820 Underpass & North Beach Street
Fort Worth, TX 76137
SAIL DESIGN #4/52

date:
2/24/23

merge conceptual design
1618 ocean park blvd
santa monica, ca 90405
p 310 366 1354

Medium Scale Wheel Patterns (29" in Diameter by Quality Wheels – Value Double Wall Front Wheel)
 Details: Wheel rims: aluminum alloy; Spokes: stainless steel; Nipples: nickel plated brass; Hubs: aluminum; Bearings: cartridge bearings pressed into hub
 Sail patterns: 18 gauge aluminum sheets (0.04") attached to the spokes with tabs and rivets
 Color: 3M Diamond Grade DG3 #4090, digitally printed with custom colors.



- 29" NOMINAL WHEEL, 1/2" RISE RIMS ATTACHED TO RIM
- WHEELS WILL RECEIVE ALUMINUM SAILS TO ACT AS WIND WHEELS:
- SAILS TO BE MADE FROM 18-GAUGE ALUMINUM
 - ONE OR TWO BENDS AS INDICATED TO FIT SPOKE GEOMETRY
 - SAILS ATTACHED TO SPOKES WITH TABS TO BE BENT AROUND SPOKES
 - RIVETS SECURE TABS AND HOLD SAIL IN PLACE
 - VERIFY PRECISE SAIL GEOMETRY & BEND LINES ON MOCK-UP BEFORE PRODUCTION
 - FRONT AND BACK OF SAILS COVERED BY REFLECTIVE TRAFFIC FILM, SEE COLOR CHART

APPROX. LOCATIONS OF SAILS ON WHEEL
 2" - 14"



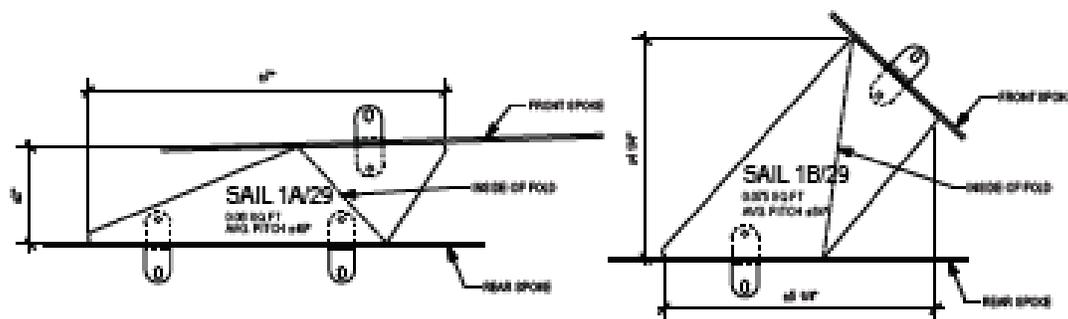
SAIL DESIGN #1/29
 FOR 29" WHEEL

8 SAILS 1A/29:
 COMBINED SAIL AREA 0.48 SQ FT @ ±48° AVG. PITCH
 8 SAILS 1B/29:
 COMBINED SAIL AREA 0.80 SQ FT @ ±68° AVG. PITCH

PITCH 0° MEANS PARALLEL TO DIRECTION OF WHEEL AXIS
 PITCH 90° MEANS PERPENDICULAR TO DIRECTION OF WHEEL AXIS = PARALLEL TO WHEEL FACE

OCCURS 12 TIMES - POSITIONS #17, 20, 26, 32, 37, 18, 16, 15, 13, 8, 21

REFERENCE IMAGE SHOWING AVERAGE PITCH OF EACH SAIL
 NO SCALE



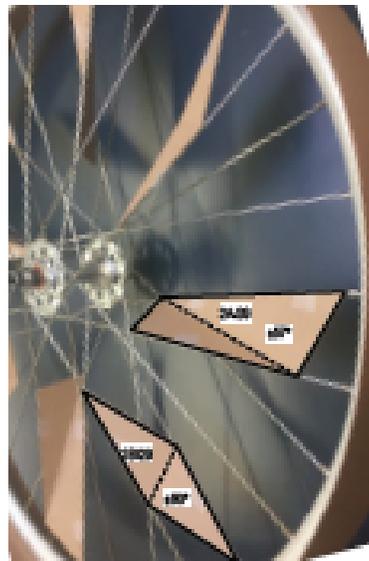
TYP. SAIL DESIGNS
 HALF FULL SCALE



39" NOMINAL WHEEL, 1/2" RISE RIMS
 ATTACHED TO RIM

- WHEELS WILL RECEIVE ALUMINUM "SAILS" TO ACT AS WIND WHEELS:
- SAILS TO BE MADE FROM 18-GAUGE ALUMINUM
 - ONE OR TWO BENDS AS INDICATED TO FIT SPOKE GEOMETRY
 - SAILS ATTACHED TO SPOKES WITH TABS TO BE BENT AROUND SPOKES
 - RIVETS SECURE TABS AND HOLD SAIL IN PLACE
 - VERIFY PRECISE SAIL GEOMETRY & BEND LINES ON MOCK-UP BEFORE PRODUCTION
 - FRONT AND BACK OF SAILS COVERED BY REFLECTIVE TRAFFIC FILM, SEE COLOR CHART

APPROX. LOCATIONS OF SAILS
 ON WHEEL
 2" - 1-6"



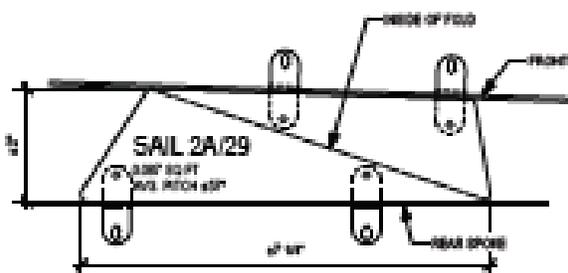
SAIL DESIGN #2/29
 FOR 39" WHEEL

- 4 SAILS 2A/29:
 COMBINED SAIL AREA 0.35 SQ FT @ 45° AVG. PITCH
- 4 SAILS 2B/29:
 COMBINED SAIL AREA 0.21 SQ FT @ 45° AVG. PITCH

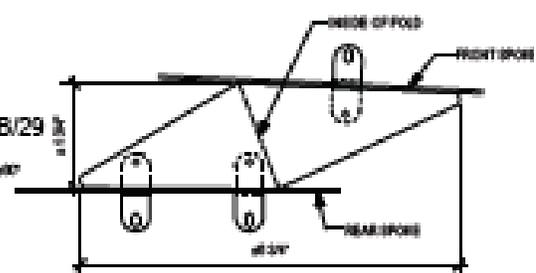
PITCH 4° MEANS PARALLEL TO DIRECTION OF WHEEL AXIS
 PITCH 90° MEANS PERPENDICULAR TO DIRECTION OF WHEEL AXIS = PARALLEL TO WHEEL FACE

OCCURS 12 TIMES - POSITIONS #2, 38, 37, 34, 33, 28, 22, 20, 15, 10, 5, 4

REFERENCE IMAGE SHOWING AVERAGE
 PITCH OF EACH SAIL NO SCALE



SAIL 2A/29
 0.35 SQ FT
 AVG. PITCH 45°

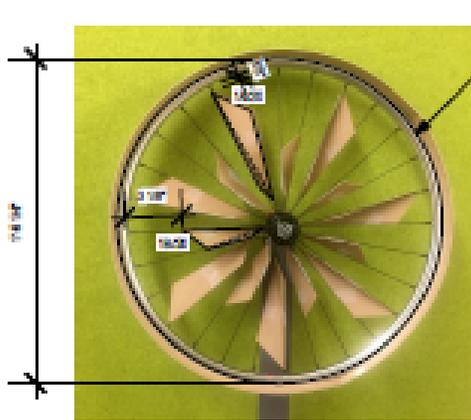


SAIL 2B/29
 0.21 SQ FT
 AVG. PITCH 45°

TYP. SAIL DESIGNS
 HALF FULL SCALE

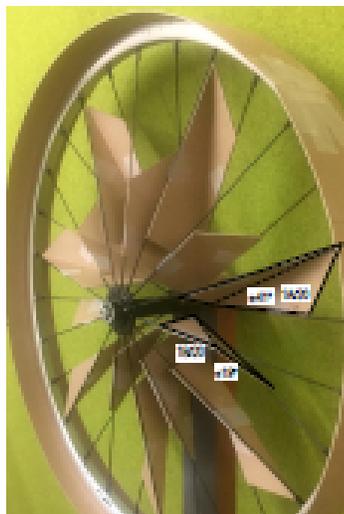
Small Scale Wheel Patterns (20" in Diameter by Box Components – Box Three Expert Front Wheel with Radial Lacing)

Details: Wheel rims: aluminum alloy; Spokes: 15 gauge stainless steel, painted black; Nipples: alloy, black; Hubs: aluminum; Bearings: cartridge bearings pressed into hub, 6901-2RS, 12x24x6mm
 Sail patterns: 18 gauge aluminum sheets (0.04") attached to the spokes with tabs and rivets
 Color: 3M Diamond Grade DG3 #4090, digitally printed with custom colors



- 20" NOMINAL WHEEL, 2" WIDE RIMS ATTACHED TO RIM
- WHEELS WILL RECEIVE ALUMINUM "SAILS" TO ACT AS WIND WHEELS:
 - SAILS TO BE MADE FROM 18 GAUGE ALUMINUM
 - ONE OR TWO BENDS AS INDICATED TO FIT SPOKE GEOMETRY
 - SAILS ATTACHED TO SPOKES WITH TABS TO BE BENT AROUND SPOKES
 - RIVETS SECURE TABS AND HOLD SAIL IN PLACE
 - VERIFY PRECISE SAIL GEOMETRY & BEND LINES ON MOCK-UP BEFORE PRODUCTION
 - FRONT AND BACK OF SAILS COVERED BY REFLECTIVE TRAFFIC FILM, SEE COLOR CHART

APPROX. LOCATIONS OF SAILS ON WHEEL
 2" - 14"



REFERENCE IMAGE SHOWING AVERAGE PITCH OF EACH SAIL NO SCALE

SAIL DESIGN #1/20 FOR 20" WHEEL

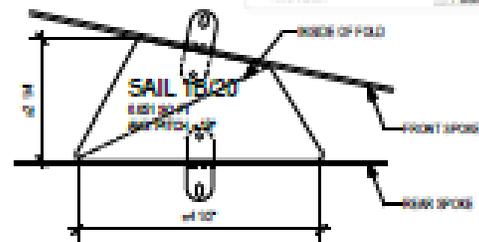
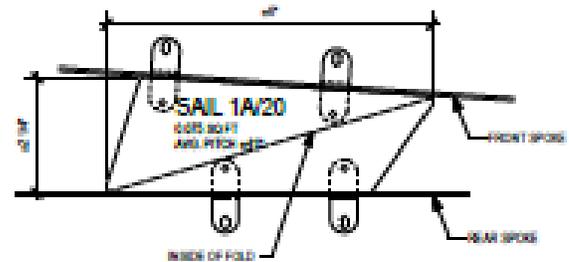
7 SAILS 1400:
 COMBINED SAIL AREA 0.53 SQ FT @ ±41° AVG. PITCH
 7 SAILS 1800:
 COMBINED SAIL AREA 0.38 SQ FT @ ±18° AVG. PITCH

PITCH 0° MEANS PARALLEL TO DIRECTION OF WHEEL AXIS
 PITCH 90° MEANS PERPENDICULAR TO DIRECTION OF WHEEL AXIS = PARALLEL TO WHEEL FACE

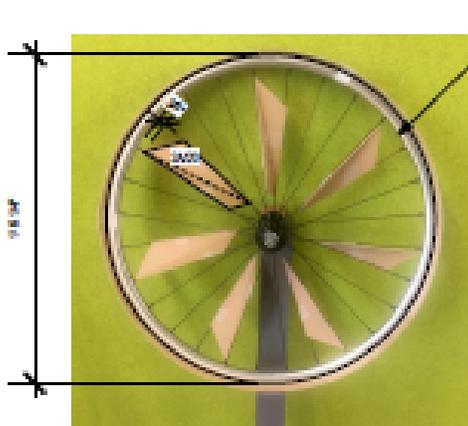
OCCURS 10 TIMES - POSITIONS #44, 41, 38, 35, 29, 25, 22, 12, 9, 8



SM Sterling Motion Loftwork, Inc.
 1114 S. 27th Street
 Phoenix, Arizona 85004
 (602) 438-2255
 Fax: (602) 438-2277
 www.sml-az.com



TYP. SAIL DESIGNS HALF FULL SCALE



20" NOMINAL WHEEL, 2" WIDE RIMS
ATTACHED TO KM

- WHEELS WILL RECEIVE ALUMINUM "SAILS" TO ACT AS WIND WHEELS:
- SAILS TO BE MADE FROM 18 GAUGE ALUMINUM
 - ONE OR TWO BENDS AS INDICATED TO FIT SPOKE GEOMETRY
 - SAILS ATTACHED TO SPOKES WITH TABS TO BE BENT AROUND SPOKES
 - RIVETS SECURE TABS AND HOLD SAIL IN PLACE
 - VERIFY PRECISE SAIL GEOMETRY & BEND LINES ON MOCK-UP BEFORE PRODUCTION
 - FRONT AND BACK OF SAILS COVERED BY REFLECTIVE TRAFFIC FILM, SEE COLOR CHART

APPROX. LOCATIONS OF SAILS
ON WHEEL
2" - 1-0"



SAIL DESIGN #2/20
FOR 20" WHEEL

7 SAILS 2A02:
COMBINED SAIL AREA 1.53 SQ FT @ 44° AVG. PITCH

PITCH 0° MEANS PARALLEL TO DIRECTION OF WHEEL AXIS
PITCH 90° MEANS PERPENDICULAR TO DIRECTION OF
WHEEL AXIS = PARALLEL TO WHEEL FACE

OCCURS 5 TIMES - POSITIONS #17, 34, 22, 20, 4

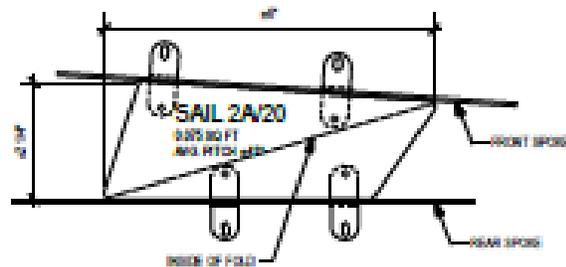
REFERENCE IMAGE SHOWING AVERAGE
PITCH OF EACH SAIL NO SCALE

2-24-23

DESIGNED BY
Fort Reg. No. 170920

THE STRUCTURAL PORTIONS OF THIS PLAN, AND ANY REVISIONS
BY CHANGES MADE BY THE CONTRACTOR, ARE TO BE COMPLETED
WITH THE FORT WORTH ENGINEERING, ARCHITECTURAL AND SURVEYING
AND ENGINEERING BOARD PERmits AND APPROVALS.

SML Sterling Architecture, Logistics, Inc.
1221 N. 19th Street
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(817) 498-2000
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www.smlinc.com



TYP. SAIL DESIGNS
HALF FULL SCALE

