



Construction Update

July 2015

Transbay Transit Center

TJPA





Transbay Transit Center

Current Project Overview



Western Zone – Gridlines 1 to 10

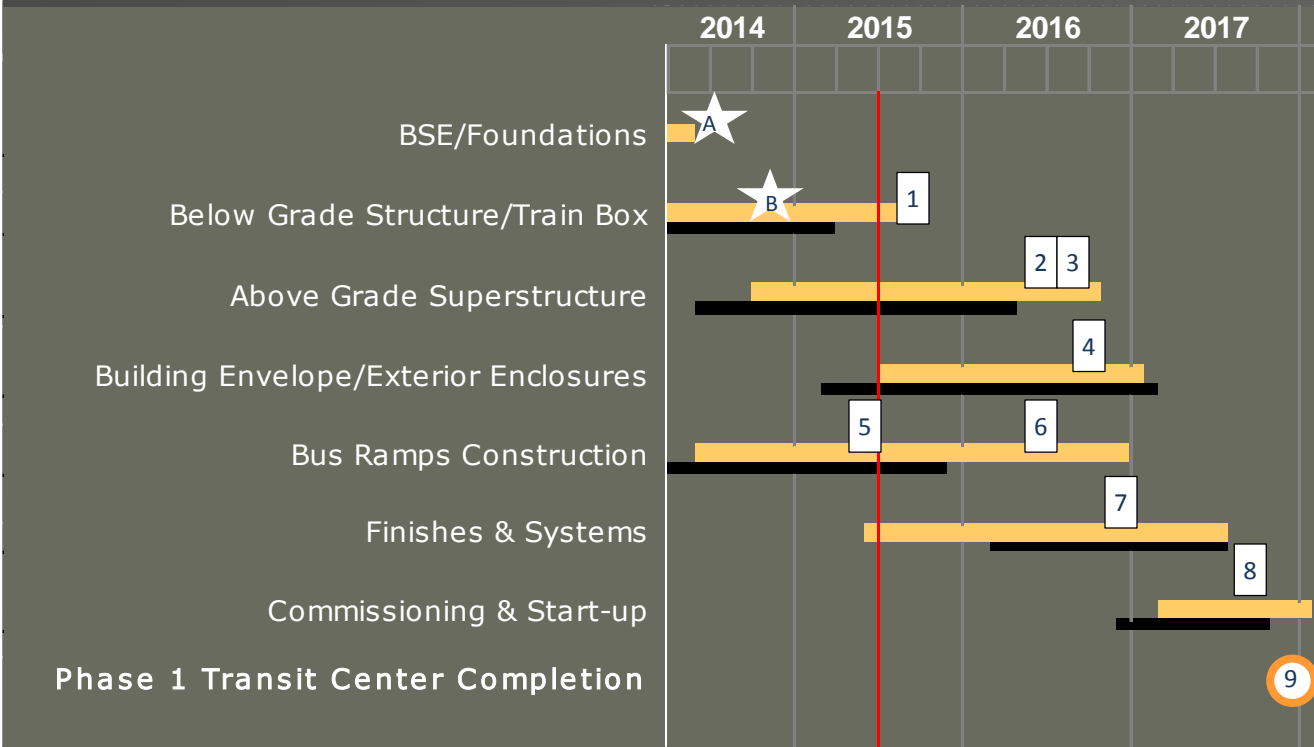
Central Zone – Gridlines 10 to 20

Eastern Zone – Gridlines 20 to 35



Project Status – Schedule

#	Milestone	Current
1	Complete TG 6.0 Below Grade Concrete	Q3 2015
2	Complete Structural Steel Erection and Welding	Q2 2016
3	Complete Above Grade Concrete	Q3 2016
4	Building Watertight	Q3 2016
5	Complete Bus Ramp Below Grade Concrete	Q2 2015
6	Complete Bus Ramp Viaduct and Cable Stay Bridge	Q2 2016
7	Permanent Power to Building	Q4 2016
8	Building Ready for Bus Driver Training	Q3 2017
9	Substantial Completion	Q4 2017



* The current critical path of the project is as follows; structural steel fabrication and erection.

Current Schedule

Baseline Schedule

= Completed Work; A) excavation through “rat” slab installation (re-bracing remains). B) mat foundation slabs.



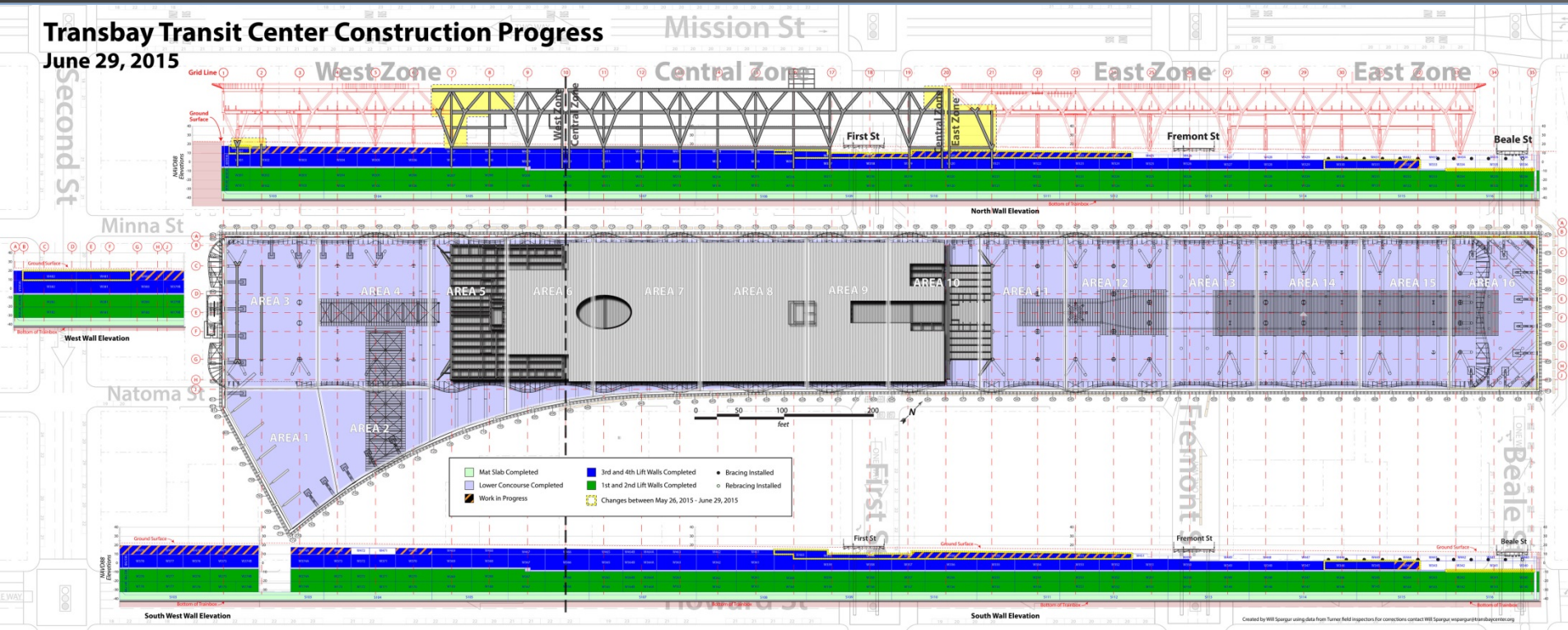
Project Status – Active Milestones

#	Milestone	Planned	Actual / Current
1	Complete TG 6.0 Below Grade Concrete	Q3 2015	Q3 2015
	Milestone Activity Start	March 2013	Jul 17, 2013 (A)
	Milestone Activity Finish	June 2015	September 2015
	Percent Complete as of June 30, 2015	100%	98%
2	Complete Structural Steel Erection and Welding	Q1 2016	Q2 2016
	Milestone Activity Start	July 2014	Oct. 29, 2014 (A)
	Milestone Activity Finish	Dec. 2015	Apr. 2016
	Percent Complete as of June 30, 2015	66%	37%



Project Status Diagram

Transbay Transit Center Construction Progress
June 29, 2015





Project Status – Contingency Tracking (\$millions)

Trend	Design Contingency	Construction Contingency	CM/GC Contingency	Program Reserve	Escalation	Total Contingency & Reserve
Baseline Budget Amounts (July 2013)	\$8.2	\$62.5	\$36.4	\$87.5	\$30.3	\$224.9
Contingency Usage Through May 2015	(\$3.5)	(\$24.4)	(\$16.6)	(\$82.0)	(\$13.0)	(\$139.5)
Remaining Baseline Budget Amounts (May 2015)	\$4.7	\$38.1	\$19.8	\$5.5	\$17.3	\$85.4
Structural Steel Change Orders		(\$1.4)				(\$1.4)
Design Build Enclosure Change Orders		(\$0.3)				(\$0.3)
Total Draws/Adds June 2015	0.0	(\$1.7)	0.0	0.0	0.0	(\$1.7)
Remaining Balances	\$4.7	\$36.4	\$19.8	\$5.5	\$17.3	\$83.7



Project Status – Safety Statistics

	2010 / 2011 / 2012	2013	2014	2015 (through June 30 th)
Total Craft Hours by Year	627,744	315,000	375,615	239,527
Number of Recordable Incidents	9	3	13	2
Number of Lost Time Incidents	1	0	4	0
WO Project Annual RIR / National Annual BLS RIR Average / California RIR Average	2.87 / 3.6 / 3.8	1.90 / 3.8 / 4.0	6.92 / tbd / tbd	tbd / tbd / tbd
WO Project Annual LTIR / National Annual BLS LTIR Average / California LTIR Average	0.32 / 1.9 / 1.8	0.00 / 1.8 / 1.7	1.60 / tbd / tbd	tbd / tbd / tbd

NOTES:

RIR = recordable incident rate, LTIR = lost time incident rate.

These rates are calculated as follows: RIR and LTIR = (# of recordable or lost time incidents for the year X 200,000) / actual hours worked.

* BLS is the Bureau of Labor Statistics, U.S. Department of Labor and State of California, it takes these agencies more than 18 months to produce the statistics after year's end.



Period Summary for June 2015

- There was one recordable incident this period. On June 9th an ironworker was struck in the neck by construction material resulting in five stitches.
- There have been over 1,550,000 craft hours completed, excluding demolition, through June 30, 2015. This is an increase of over 40,000 hours since our last construction update.
- Steel fabrication continues in all Structural Steel fabrication shops. For now, Skanska is still taking advantage of seven different fabrication facilities.
- Structural steel has been erected from gridline (GL) 7 to GL 20. Welding and decking is complete from GL 10 to GL 15 and in progress from GL 15 to GL 20. Deck areas have been turned over to follow on trades between GL 10 to GL 15.
- Structural steel erection with Crane #1 continues and is currently in progress eastward from GL 21. Work over First Street was completed, including welding and decking, this month. Crane #2, steel erection now continues from GL 1 toward GL 3.



Period Summary for June 2015

- In the western zone, concrete placement on the vehicle / bike ramp as well as interior partition walls continues.
- In the central zone, the first Train box Lid (eyebrow portion) pour occurred on June 6th between GL 10 and GL14.
- In the western and central zones, 4th lift walls are in progress from GL 1 and GL 25, complete from GL 7 to GL 16.
- In the eastern zone, the 3rd lift wall concrete placement and re-bracing continues.
- MEP trades have begun rough-in work on the metal deck at both the ground level and 2nd level between GL 10 and GL 17.
- Stair installation continues between GL 10 and GL 15.
- On the Bus Ramp / Bridge, falsework installation continues at multiple locations for viaduct and cable stay bridge.



Transbay Transit Center

Below Grade Concrete Progress Through June 30, 2015

Steel Erection Zones	1st Lift Walls	1st Lift Walls Poured	1st Lift Walls Percent	2nd Lift Walls	2nd Lift Walls Poured	2nd Lift Walls Percent	3rd Lift Walls	3rd Lift Walls Poured	3rd Lift Walls Percent
Western	35	35	100%	35	35	100%	35	35	100%
Central	20	20	100%	20	20	100%	20	20	100%
Eastern	35	35	100%	35	35	100%	35	22	63%
Total	90	90	100%	90	90	100%	90	77	86%

Steel Erection Zones	Columns	Columns Poured	Columns Percent	Lower Concourse Decks	Lower Concourse Poured	Lower Concourse Percent	4th Lift Walls	4th Lift Walls	4th Lift Walls
Western	62	62	100%	10	10	100%	35	12	35%
Central	48	48	100%	10	10	100%	20	14	70%
Eastern	66	66	100%	16	16	100%	35	0	0%
Total	176	176	100%	36	36	100%	90	26	29%



Western Zone Activity



Above Left : View of west end from northwest corner. GL 1 steel erection in progress.

Above Right: Work proceeding where vehicle and bike ramps exit the building.

Below Right: 4th lift wall placement at west end of project.





Central Zone Activity



Above Left and Right: Steel erection continues.

Lower Right: Work platform in place over First Street.





Central Zone Activity



Above: Stair installation continues.

Above Right: Formwork and reinforcing steel for eyebrow (train box lid) pour.

Below Right: Placement of eyebrow concrete.





Above: Steel erection begins in the eastern zone.



Above Right: Re-bracing in preparation for 3rd lift walls continues.



Below Right: 3rd lift wall work continues.



Transbay Transit Center

Ongoing Structural Steel Fabrication



Above: Pipe column fabrication at Oregon Iron Works (OIW).

Above Right: Transfer girder fabrication at OIW.

Below Right: Trial assembly of upper light column ring at OIW.





Bus Ramp and Bridge as of June 30, 2015

- Current Status
 - All columns have been placed.
 - Cable Stay Bridge saddle materials are in fabrication.
 - Abutments and retaining walls, near Folsom and Harrison Streets, are in progress.
 - Falsework submittals have been completed and approved. Falsework continues at Pylon 9 and Bent 8 as well as inside the Transit Center footprint.
 - Street crossings for falsework are being planned for several weekends in July.





Bus Ramp and Bridge



Above Left and Right: Falsework erection in progress, southside of Folsom Street.

Below Right: Steel falsework columns for cable stay bridge portion of work.





Construction

The Next 90 Days

- Next 30 Days (Jul.)
 - Continue 3rd lift walls and re-bracing in the eastern zone.
 - Continue structural steel fabrication and complete cast node fabrication. Ship final cast nodes.
 - Continue Bus Ramp abutment and viaduct falsework. Place falsework over Folsom, Tehama and Howard Streets.
 - Continue structural steel erection and 4th lift walls in all zones.
 - Continue MEPF Coordination and rough-in for decks in central zone.
 - Continue stair installation.
 - Continue above grade concrete placement.
- Next 60-90 Days (Aug. – Sep.)
 - Complete 3rd lift walls and continue re-bracing work in eastern zones.
 - Continue Bus Ramp and Bridge work falsework, start viaduct soffit installation.
 - Continue structural steel fabrication, delivery and erection in all zones. Start steel erection over Fremont Street.
 - Continue installation of stairs and ladders.
 - Continue superstructure concrete in central and western zones.
 - Continue MEPF deck rough-in of embeds, blockouts and sleeves.



Planned Street Closures

- Planned Weekend Street Closures for Falsework Installation and Steel Erection:
 - For Bus Ramp falsework; Folsom Street closure the weekend of July 10th, 11th and 12th.
 - For Bus Ramp falsework; Tehama Street closure on Tuesday and Wednesday, July 14th and July 15th.
 - For Bus Ramp falsework; Howard Street closure the weekend of July 17th, 18th and 19th.
 - For steel erection over Fremont Street; overnight street closures and overnight work will begin on weekend of August 14th.
- Advanced Planning and Steps Taken to Notify Community Members and Neighbors:
 - Door to Door Outreach and flyers.
 - Email notification.
 - Detailed information is included as part of the 10 day look ahead that is distributed to members of the community.
 - Face to Face meetings and presentations with key neighbors (Blackrock and Millennium).
 - Regular weekly meetings with SFMTA.
 - Information is included as part of Monthly noontime Community Meetings.

Bay Area Regional Labor Breakdown

	Through June 2015	
Location	Total Hours Completed	Percent of Total
East Bay (Alameda, Contra Costa, Solano)	585,849	38%
North Bay (Marin, Napa, Sonoma)	53,840	3%
South Bay (San Mateo, Santa Clara)	141,405	9%
San Francisco	263,630	17%
Other*	513,162	33%
Totals	1,557,886**	100%

*Other includes workers from throughout California including the Central Valley as well as workers from out of state who are onsite for specific tasks.

**Total hours are for the Transit Center construction work and do not include the initial Demolition work represented by a total of approximately 55,000 craft hours.



Bay Area Regional Apprentice Hours Breakdown

	Through June 2015	
Location	Total Hours Completed	Percent of Total
East Bay (Alameda, Contra Costa, Solano)	82,498	31%
North Bay (Marin, Napa, Sonoma)	13,220	5%
South Bay (San Mateo, Santa Clara)	34,390	13%
San Francisco	77,163	29%
Other*	59,163	22%
Totals	266,434*	100%

*Other includes workers from throughout California including the Central Valley as well as workers from out of state who are onsite for specific tasks.



Labor Breakdown by Trade through June 2015

Classification	TTC Building and RUP's*
Inspectors – Soils / Material Test	43
Carpenters and Related Trades	241
Cement Mason	79
Electrical – Utility Lineman	28
Electrician	55
Field Surveyor	38
Iron Worker	648
Laborer and Related Trades	753
Operating Engineer	456
Pile Drivers	200
Plumber	27
Roofer and Waterproofor	40
Sheet Metal	5
Teamsters	178
Tile Setters / Finishers	7
Water Well Driller	9
Totals	2,807

* Relocation of Utilities Project



Transbay Transit Center

Questions?





Board Item No. 12

Contract No. 08-04-CMGC-000

TG 8.2R Exterior Awning System

July 7, 2015

Transbay Transit Center

TJPA



Scope of Work

- Award of the construction services portion of a design-build contract following the completion of the design services phase.





TG 8.2R Exterior Awning System RFP Summary

Cost Element	Cobra BEC, Inc.	Crown Corr, Inc.	Shimmick Construction
Design Services of W-1	\$1,260,000	\$1,750,000	\$3,611,367
Construction Fee (% x estimated construction costs of \$30 million)	\$4,350,000 (14.5%)	\$5,400,000 (18%)	\$4,672,152 (15.57%)
Construction Overhead (% x estimated construction costs of \$30 million)	\$9,750,000 (32.5%)	\$3,600,000 (12%)	\$4,610,000 (15.37%)
Total Proposal Price	\$15,360,000	\$10,750,000	\$12,893,519

TG 8.2R Exterior Awning System Price Negotiations Result

Budget: \$33,968,627*

Construction Cost: \$35,262,150

*construction services phase

EXTENT OF AWNING

RESULTS OF DESIGN-BUILD PROCESS & COST SAVING EXERCISE

- Simplification of Geometry
- Reduction in Unique Components
- Reduction in Surface Area
- Optimization of System
- Optimization of Cost



PARK LEVEL

BUS DECK LEVEL

W-1 METAL AWING

GROUND LEVEL



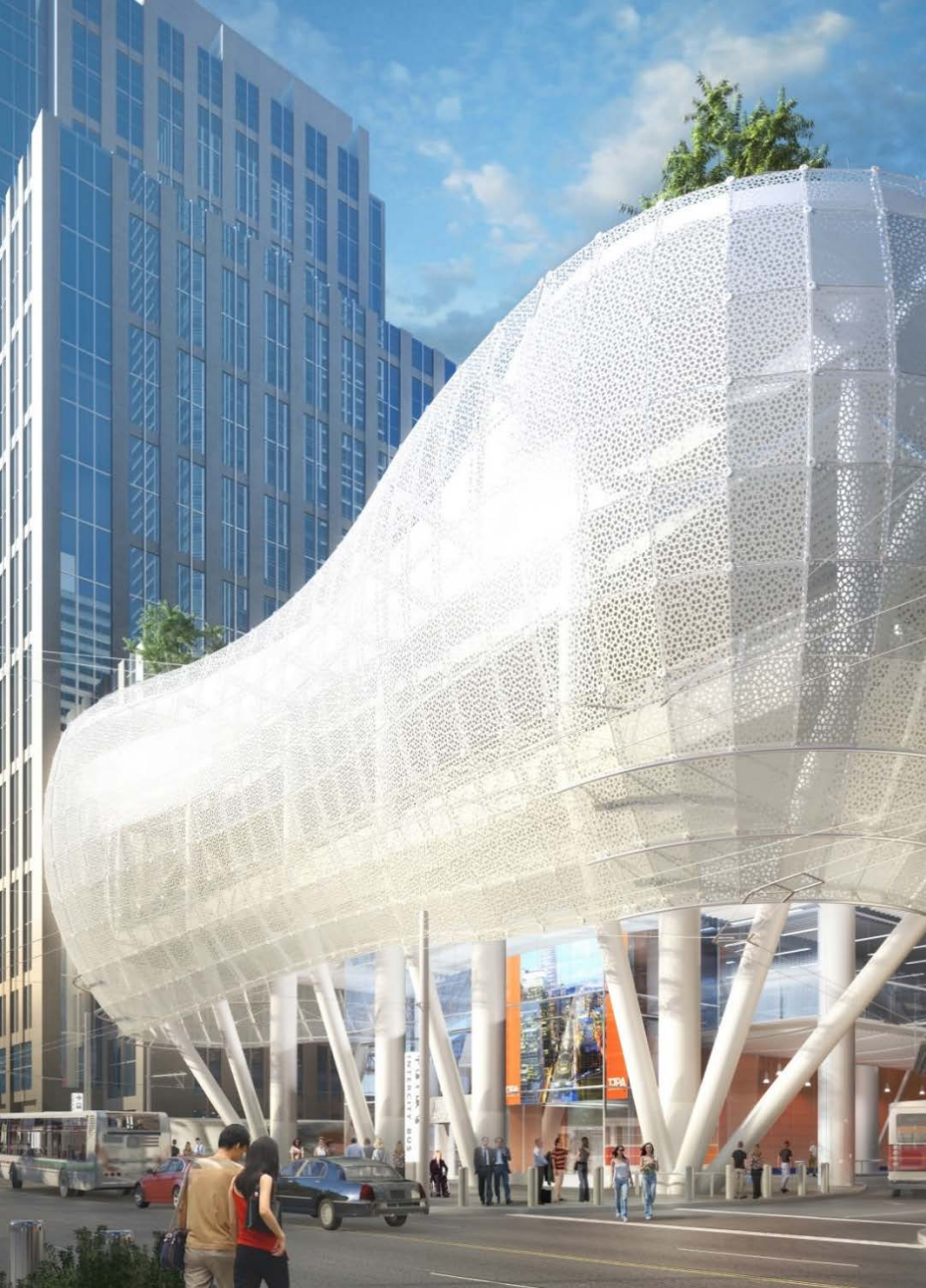


PREVIOUS DESIGN



DESIGN-BUILD SOLUTION

NATOMA PEDESTRIAN WAY



PREVIOUS DESIGN



DESIGN-BUILD SOLUTION

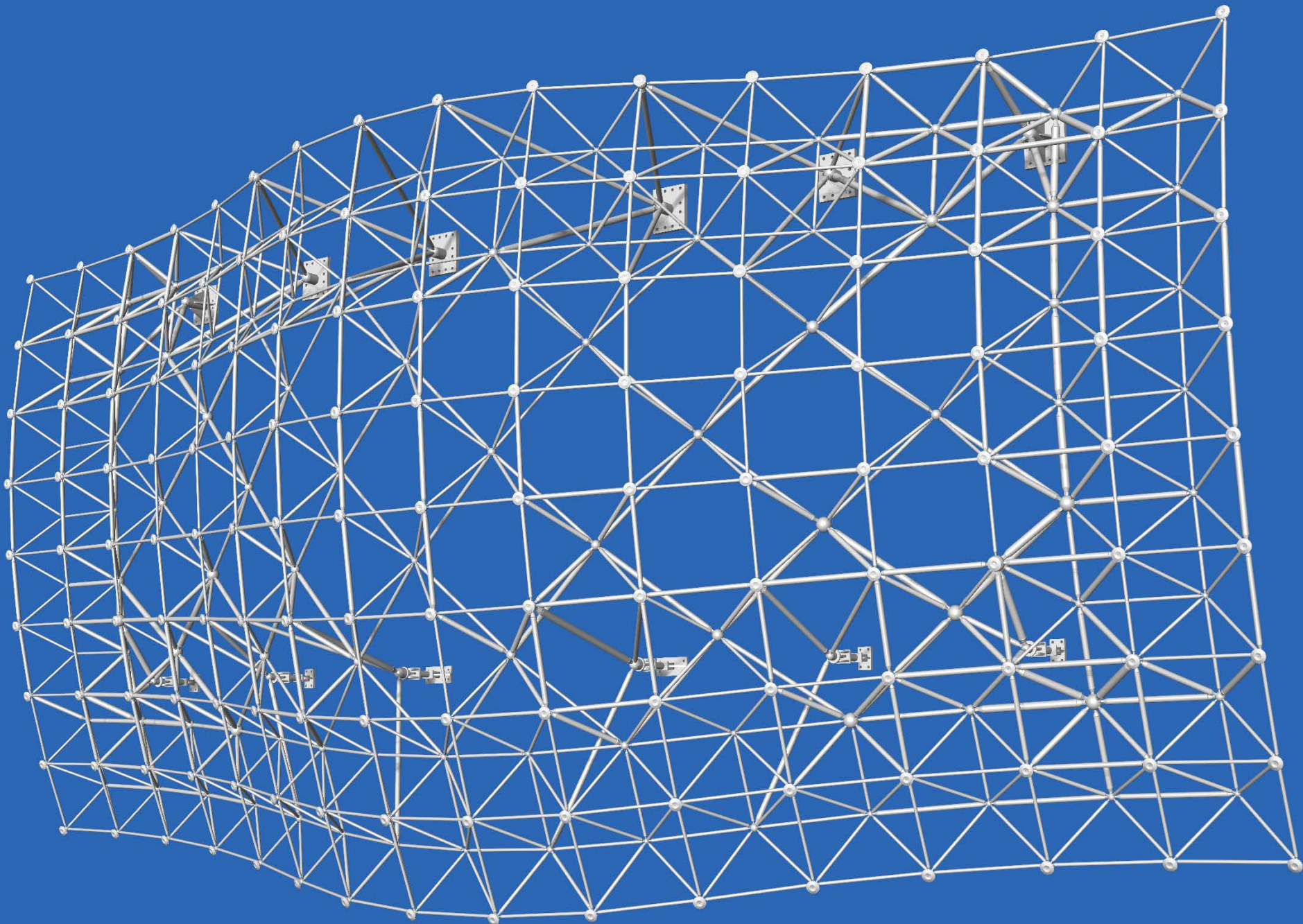


PREVIOUS DESIGN

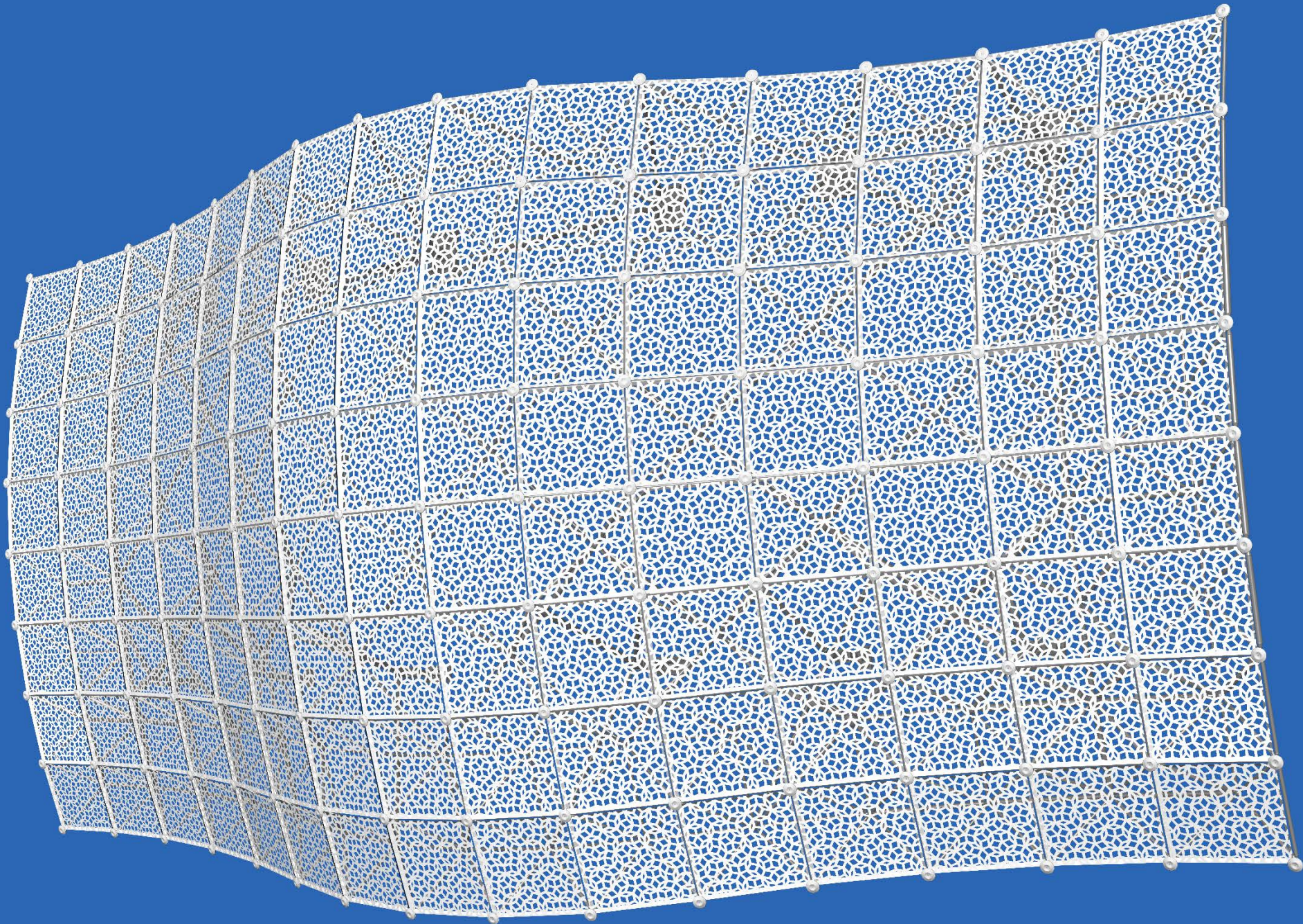


DESIGN-BUILD SOLUTION

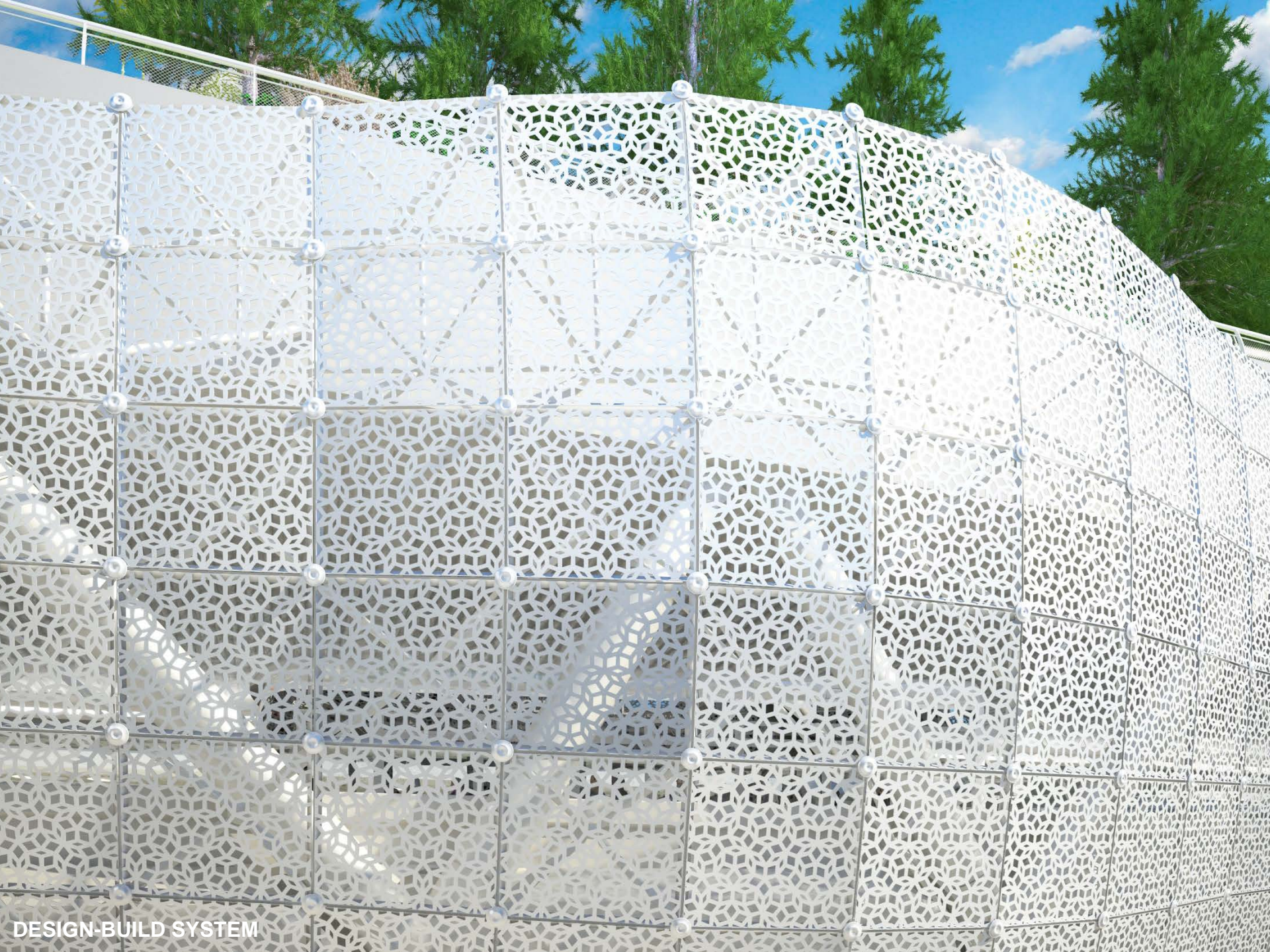
DESIGN-BUILD AWNING SYSTEM



DESIGN-BUILD SPACE FRAME SUBSTRUCTURE



DESIGN-BUILD METAL PANEL FULL BAY



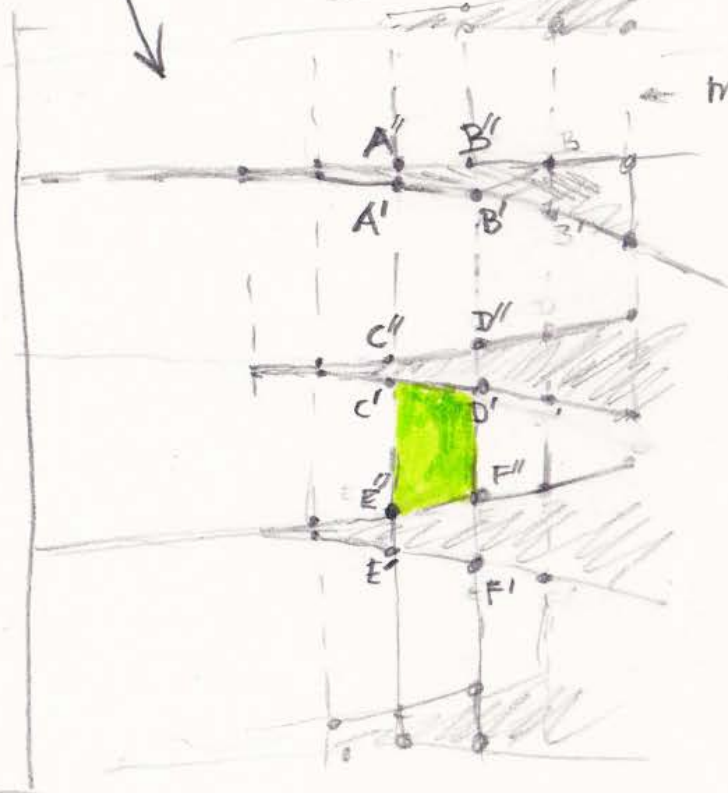
DESIGN-BUILD SYSTEM



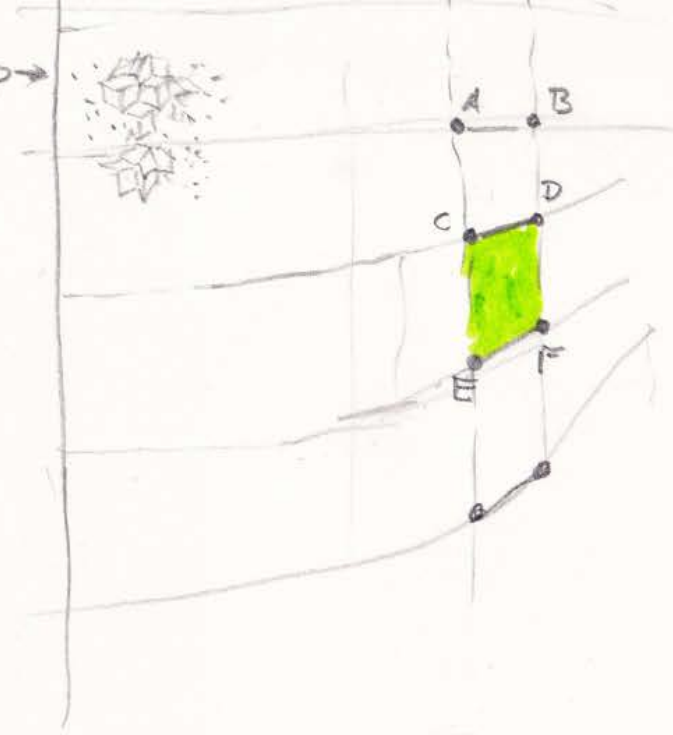
DESIGN-BUILD SYSTEM

PENROSE PATTERN

folds up to produce transbay skin

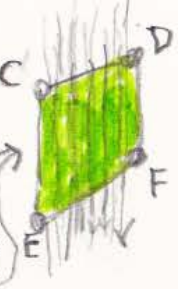


Correct tiling pattern
Continuous



To construct patterned panels

Correct rhombus tiling



slightly distorted rhombus tiling

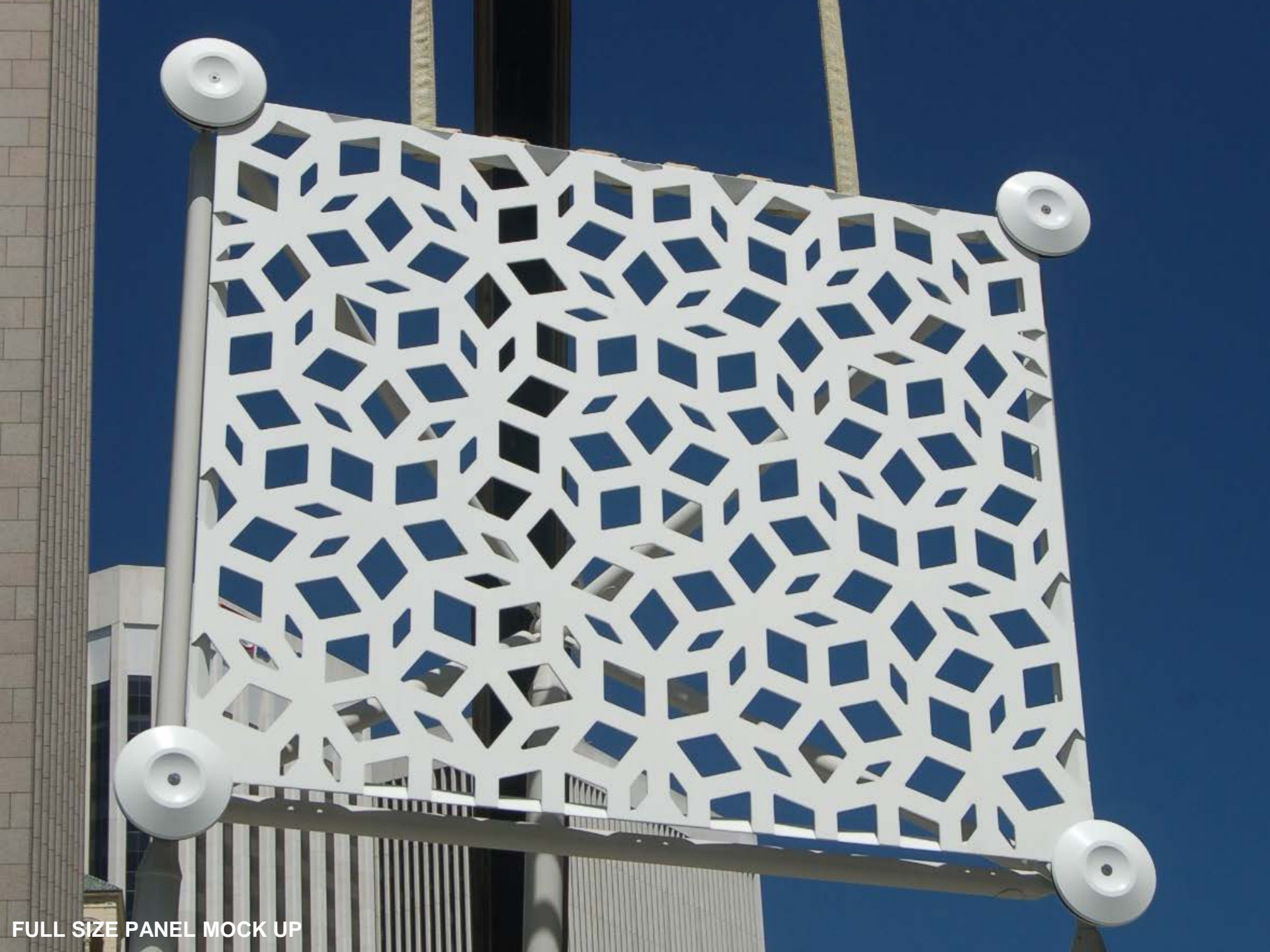
simply slide down rhombuses vertically by slightly increasing amounts as we move out horizontally



RESOLVED PENROSE PATTERN



JUNE 9, 2015 WORK SESSION WITH DR ROGER PENROSE



FULL SIZE PANEL MOCK UP



FULL SIZE PANEL MOCK UP





Board Item No. 11

Contract No. 08-04-CMGC-000

**TG12.1: Civil/Site Work at Grade/Ground
Level Landscaping**

July 7, 2015

Transbay Transit Center

TJPA





TG12.1: Civil/Site Work at Grade/ Ground Level Landscaping Scope of Work

- Construct sidewalks, curbs, and driveways
- Construct catch basins, and manholes
- Ground level planters, irrigation, and planting
- Shaw Alley art installation
- Asphalt and concrete street paving & traffic striping
- Removal of temporary bridges at First, Fremont and Beale streets
- Street level light poles and lights, controllers and cabinets
- Traffic and pedestrian signals, controllers and cabinets
- Demolition of roadways and curbs
- Relocation of catch basins, pull boxes and street lights
- Shoring, excavation, cutting, removal, and disposal of 3600 linear feet of CDSM shoring wall and soldier beams to a depth of approximately six feet and import backfill
- Selective excavation for installation/connections of new elements within project site
- Backfill and compaction of all excavated areas
- Interface with building access control systems and unified security platform

TG12.1: Civil/Site Work at Grade/ Ground Level Landscaping Bid Summary

Bid Date:	6/16/2015
Budget:	\$19.52
CM/GC Estimate:	\$19.7M
SBE Goal:	10%
Prequalified Bidders:	7
Bids Received:	2
Bid:	\$17.31M - \$27.17M

TG12.1: Civil/Site Work at Grade/ Ground Level Landscaping Bid Results

Bidder Name	Gordon N. Ball, Inc.	Shimmick Construction Company, Inc.
Base Bid Amount	\$17,310,000	\$27,169,000
Deductive Alternate: Single Color Sidewalk Paving	(\$595,000)	(\$220,000)
Total Bid Price (Bid Price Less Deductive Alternate)	\$16,715,000	\$26,949,000
Add Alternate: Stone paving around Grand Hall	\$2,230,000	\$3,350,000
Add Alternate: City standard "Lamp Black" paving at Bus Plaza	\$50,000	\$500,000
Total Bid (Includes Deductive and Additive Alternates)	\$18,995,000	\$30,799,000

TG12.1: Civil/Site Work at Grade/ Ground Level Landscaping Recommendation

Staff recommends award of this trade package to Gordon N. Ball, Inc. as the responsible bidder submitting the lowest responsive bid in the amount of \$16,765,000, which includes Total Bid Price (Bid Price Less Deductive Alternate) of \$16,715,000 and add alternate of \$50,000 for City standard “Lamp Black” paving at Bus Plaza.

It also is recommended to use place the savings of \$2,759,959 between the budget and the award amount in the Program, Reserve increasing the Program Reserve to \$8,264,730.



Transbay Transit Center

Questions?





Board Item No. 13
Contract No. 08-04-CMGC-000
TG16.0 Interiors/Finishes
July 7, 2015

Transbay Transit Center

TJPA



Interiors/Finishes Scope of Work

Concrete Masonry Units

Drywall & Metal Framing

Building Insulation

Clay Panel Cladding

Bird Deterrent

Ballistic Resistant Panels

Acoustic Ceiling Tiles & Wall
Treatments

Painting

Doors/Frames/Hardware

Interior Architectural Woodwork &
Countertops

Prefabricated Buildings

Final Cleaning

TG16.0

Interiors/Finishes

Bid Summary

Bid Date:	5/21/2015
Budget:	\$20.86M
CM/GC Estimate:	\$20.82M
SBE Goal:	19%
Prequalified Bidders:	4
Bids Received:	3
Bid:	\$39.03M - \$47.74M

TG16.0

Interiors/Finishes

Bid Results

	Skanska USA Building	S.J. Amoroso Construction Co.	West Bay Builders	Budget	CM/GC Estimate
Bid Amount	\$39.03M	\$45.66M	\$47.74M	\$20.86M	\$20.91M

TG16.0: Interiors/Finishes CM/GC Bid Variance Analysis

Major components of the approximately \$18M cost differential:

- Masonry Walls - costs \$4.8M higher than estimated
- Metal Framing & Drywall - costs \$11.67M higher than estimated
- Access Platform - added scope of \$1.24M

TG16.0: Interiors/Finishes CM/GC Bid Variance Analysis

This difference is due to the following factors:

- Quantities added to this trade package are not accounted for in the estimate: \$3 million
- Labor productivity low in estimate: \$4.5 million
- Scaffolding for drywall missed in estimate: \$1.8 million
- Scope shifted to this trade package from other trade packages and not accounted for in the estimate: \$2.5 million

TG16.0: Interiors/Finishes Recommendation

Staff recommend the award of TG16.0 Interiors/Finishes to Skanska USA Building in the amount of \$39,026,000.

Since the CM/GC has identified this trade package as schedule critical, it is recommended to utilize funding previously reserved for remaining trade packages to fund the balance of \$18,163,217 between the award amount and the current TG16.0 budget.

The funding for the remaining trade packages shall then be replenished when the Phase 1 Program budget is revised in September 2015



Transbay Transit Center

Questions?





Board Item No. 14
Contract No. 08-04-CMGC-000
TG08.11R

Glass Curtain Walls & Skylights

July 7, 2015

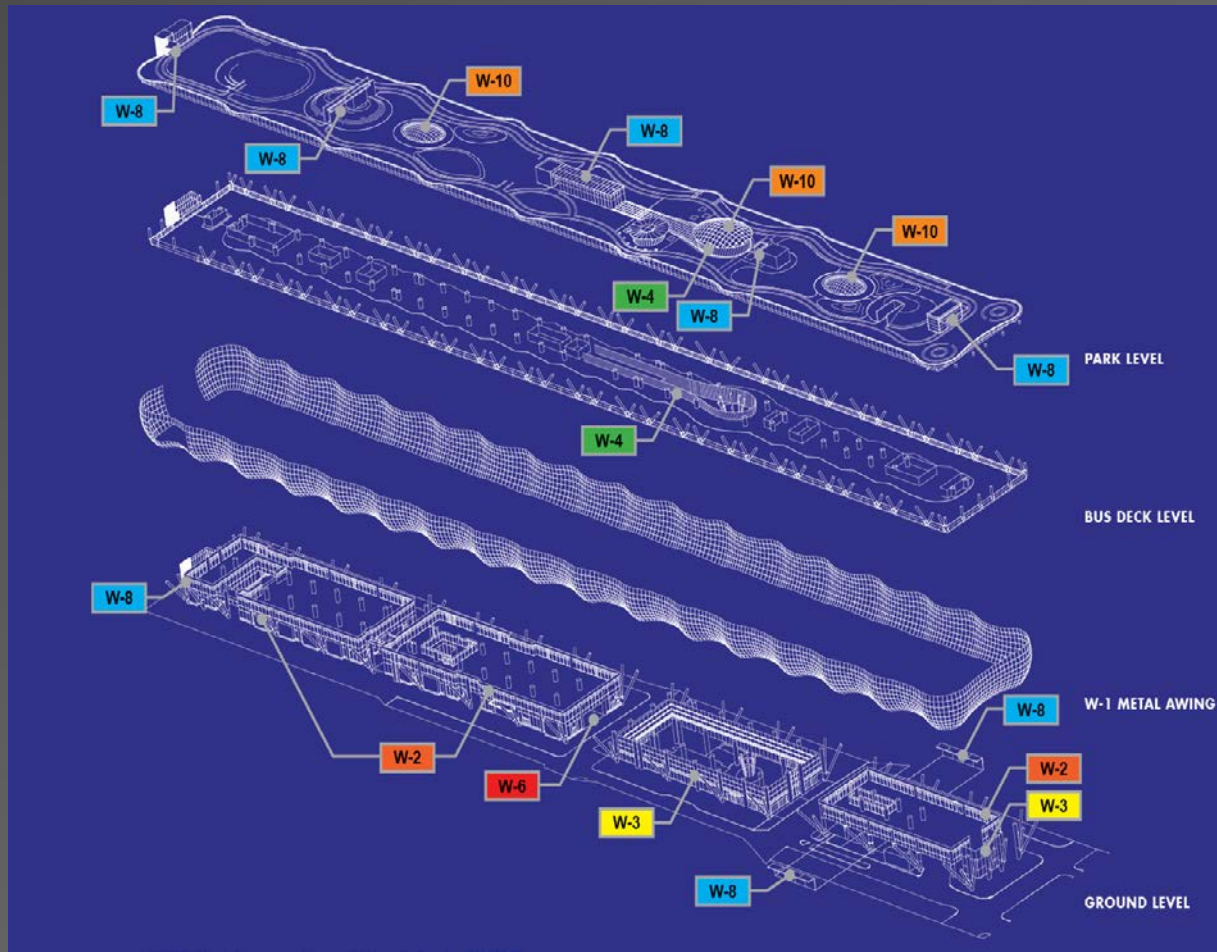
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TG08.11R Glass Curtain Walls & Skylights Scope of Work

- Construction services portion of a design-build contract to construct six different glazing systems at various locations throughout the Transit Center



Glass Curtain Walls & Skylights Design Services Proposal Summary

Cost Element	Crown Corr, Inc.	Woodbridge Glass, Inc.
Design Services of TG08.11R	\$2,950,000	\$3,000,000
Construction Fee (% x estimated construction costs of \$23.5 million)	\$4,230,000 (18%)	\$5,000,000 (21.28%)
Construction Overhead (% x estimated construction costs of \$23.5 million)	\$2,820,000 (12%)	\$5,000,000 (21.28%)
Total Proposal Price	\$10,000,000	\$13,000,000



Glass Curtain Walls & Skylights Price Proposal

	Crown Corr Price Proposal	Budget	CM/GC Estimate
Amount	\$59.7M	\$26.8M	\$40.5M

- Design awarded to Crown Corr in February 2015
- Systems now fully designed and priced

Glass Curtain Walls & Skylights Price Proposal Summary

Glass Curtain Walls and Skylight Systems:	Cost
Direct Construction Cost Total	\$48,368,318
Construction Overhead (12% x Direct Construction Costs)	\$5,804,197
Construction Fee (13%* x Direct Construction Costs)	\$6,287,881
Retention Reduction Savings (retention reduced to 2.5% and released at 50% completion)	(\$750,000)
Total Construction Cost	\$59,710,396

* Reduced from 18% submitted with their CCI's proposal.

Glass Curtain Walls & Skylights CM/GC Bid Variance Analysis

- Added glazed pop-outs at retail entrances \$2.7M
- DGC loading criteria \$3.8M
- Load transfer to structure \$2.5M
- Labor production/productivity \$3.6M
- Shortened time for material procurement \$1.5M
- Glass cost escalation of 20%

Glass Curtain Walls & Skylights Recommendation

Staff recommends award of the construction services of TG08.11R: Glass Curtain Walls and Skylights to Crown Corr, Inc., in the amount of \$59,710,396.

Since the CM/GC has identified this trade package as schedule critical, it is recommended to utilize funding previously reserved for remaining trade packages to fund the balance of \$32,900,108 between the award amount and the current TG08.11R budget.

The funding for the remaining trade packages shall then be replenished when the Phase 1 Program budget is revised in September 2015



Transbay Transit Center

Questions?

