Report By:

National TAB
1329 E. KEMPER ROAD
SUITE 4210
CINCINNATI, OH 45246

Report: TAB

Function: Test, Adjust, & Balance

Date: 03/13/2025

Completed By: National TAB

PROJECT

Riverbank Community Center (Riverbank, CA)

3309 Stanislaus Street

Riverbank, CA 95367

Client

B&M Builders, Inc.

11330 Sunrise Park Drive

Suite C

Rancho Cordova, CA 95742

National TAB

Project: Riverbank Community Center (Riverbank, CA)

Table Of Contents

Project Summary

RTU's (Roof Top Units) w/ Diffusers
RTU's were measured at their terminal devices or via traverse to establish a total flow for that unit. Each RTU was adjusted to within tolerance of the engineer's design flow. Each outlet was then adjusted to within tolerance of the design flow. Outside air was measured by reading the intake air opening with a velocity grid and multiplying by the free area. The outside air damper was adjusted until the airflow was within the design requirements. Any equipment that fell outside of that tolerance is noted throughout the report.

General Exhaust Fans w/ Grilles
The general exhaust fans were measured by reading each air device with a flow hood. The total airflow for each fan is equivalent to the sum of these readings. Fan speed was then adjusted so that the airflow was within tolerance of design. Each terminal device was balanced to within tolerance of the design volume using the installed volume dampers. Any equipment that fell outside of this tolerance is noted throughout the report.

Final Building Tests
After completing the test and balance the final building pressure was measured. It was confirmed that the building pressure fell within acceptable tolerances of -0.02" wc to +0.02" wc and that the pressure measurement coincides with the actual and design net airflow. Any deviations from these standards are noted throughout the report.
The hood capture was tested at the perimeter of the hood and the cook top level with the equipment heat on to ensure satisfactory hood capture and containment.

CERTIFICATION

PROJECT: Riverbank Community Center (Riverbank, CA)

The data presented in this report is a record of system measurements and final adjustments that have been obtained in accordance with the current edition of the NEBB Procedural Standard for Testing, Adjusting and Balancing of Environmental Systems. The measurements shown, and the information given, in this report are certified to be accurate and complete, at the time and date information was gathered. Any variances from design quantities, which exceed NEBB tolerances, are noted in the TAB report project summary.

NEBB TAB FIRM: National TAB - Kansas City
REGISTRATION NO: 3768
CERTIFIED BY: Will Turnbough
DATE: 3/13/2025

Submitted and Certified by:

NEBB TAB FIRM: National TAB - Kansas City
TAB PROFESSIONAL: Will Turnbough
REGISTRATION NO: CP-24289
CERTIFICATION EXP: 12/31/2025

National TAB

Project: Riverbank Community Center (Riverbank, CA)

System/Unit: FAN - Exhaust

Asset: EF-1 AREA:RESTROOMS

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	G-080-VG-1-17-x
Serial Num	-	25206163
Type	CRE DNBLAST	DOWNBLAST

Test Data		
	Design	**Actual**
CFM	300	313
RL Voltage	115	NA
RL Amperage	1.38	NA
Total ESP	0.375	0.43"

Motor Data		
	Design	**Actual**
Motor MFG	-	VARI-GREEN
Frame	-	NL
Horsepower	0.10	0.10
Motor Rpm	1725	1750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.38
Service Factor	-	NL

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Unit Data - PHOTO LOG

03/10/2025

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Project:Riverbank Community Center (Riverbank, CA)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF-1/RESTROOMS

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	CE-1	8	150	1	209	154	154	102.7
EGRD2	CE-1	8	150	1	157	159	159	106.0
Total			300		366	313	313	104.33%

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Project: Riverbank Community Center (Riverbank, CA)

System/Unit: FAN - Exhaust

Asset: EF-2 AREA:ELECTRICAL/AV

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	G-080-VG-1-17-X
Serial Num	-	25206166
Type	CRE DNBLAST	DOWNBLAST

Test Data		
	Design	**Actual**
CFM	225	227
RL Voltage	115	NA
RL Amperage	1.38	NA
Total ESP	0.375	0.31"

Motor Data		
	Design	**Actual**
Motor MFG	-	VARI-GREEN
Frame	-	NL
Horsepower	0.10	0.10
Motor Rpm	1725	1750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.38
Service Factor	-	NL

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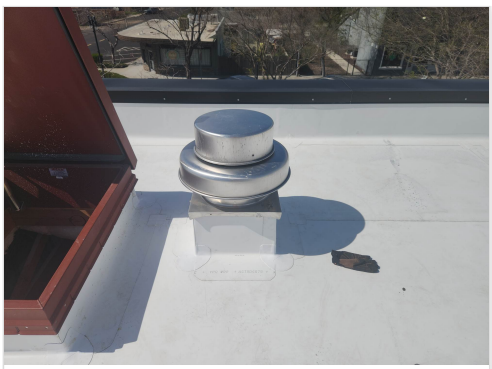
Unit Data - PHOTO LOG



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National TAB

Project:Riverbank Community Center (Riverbank, CA)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF-2/ELECTRICAL/AV

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	CE-2	10X10	225	1	395	227	227	100.9
Total			225		395	227	227	100.89%

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Project: Riverbank Community Center (Riverbank, CA)

System/Unit: FAN - Exhaust

Asset: EF-3 AREA:STORAGE

Unit Data		
	Design	**Actual**
MFG	NA	GREENHECK
Model Num	NA	G-060-VG-1-17-X
Serial Num	-	25206174
Type	CRE DNBLAST	DOWNBLAST

Test Data		
	Design	**Actual**
CFM	65	66
RL Voltage	115	NA
RL Amperage	1.3	NA
Total ESP	0.375	0.28"

Motor Data		
	Design	**Actual**
Motor MFG	-	VARI-GREEN
Frame	-	NL
Horsepower	0.067	0.067
Motor Rpm	1725	1750
Phase	1	1
Voltage (rated)	115	115
Amperage (rated)	-	1.3
Service Factor	-	NL

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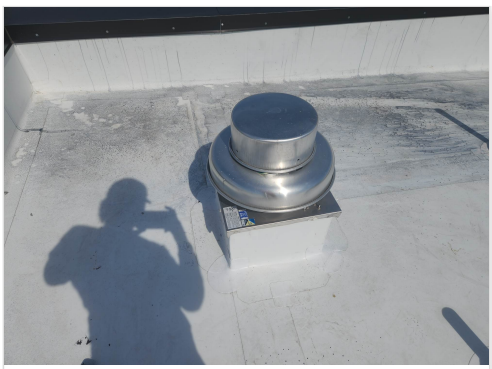
Unit Data - PHOTO LOG



03/10/2025

National TAB

Project:Riverbank Community Center (Riverbank, CA)

FAN - Exhaust

Diffuser Ret/Exh (GRD)

EF-3/STORAGE

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	CE-2	8X8	65	1	125	66	66	101.5
Total			65		125	66	66	101.54%

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Project: Riverbank Community Center (Riverbank, CA)

System/Unit: AHU/RTU

Asset: RTU-1 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2H3841317
Model Num	NA	XYE04A1B1AA1A111A3
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	12X25
Num PreFilter 1	-	2
PreFilter Size 1	-	16X25X2

Test Data		
	Design	**Actual**
SF CFM	1200	1269
SF RPM	1033	890
RA CFM	745	816
OA CFM	455	453
RL Voltage	208	244/244/244
RL Amperage	7.6	4.0/4.0/4.0
OA Damper Position	-	38%
Brake Horse Power	0.61	0.83

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	1.50	1.5
Motor Rpm	-	1725
Phase	1	1
Rated Voltage	208	230
Rated Amperage	7.6	7.2
Service Factor	-	1.15

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.31"
Fan Suction SP	-	-0.46"
Fan Discharge SP	-	0.23"
Total ESP	0.65	0.54"
Fan Total SP	-	0.69"

Drive Data	
	Actual
Motor Sheave Size	1VL34
Motor Bore Size	5/8"
Motor Sheave SetPt	3 TURNS OPEN
Fan Sheave Size	AK46
Fan Sheave Bore	3/4"
Belt CL Distance	15-1/4"
Num of Belts	1
Belt Size	A39

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Unit Data - PHOTO LOG

03/10/2025

National TAB

Project:Riverbank Community Center (Riverbank, CA)

AHU/RTU

Diffuser Supply (GRD)

RTU-1/

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	BOYS RR	CS-2	8	75	172	80	106.7
SGRD2	GIRLS RR	CS-2	8	75	161	82	109.3
SGRD3	COMM RM	CS-1	10	260	282	272	104.6
SGRD4	COMM RM	CS-1	10	260	215	281	108.1
SGRD5	COMM RM	CS-1	10	265	263	279	105.3
SGRD6	COMM RM	CS-1	10	265	282	275	103.8
Total				1200	1375	1269	105.75%

Diffuser Ret/Exh (GRD)

RTU-1/

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	CR-1	14	900	1	816	819	816	90.7
Total			900		816	819	816	90.67%

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Project: Riverbank Community Center (Riverbank, CA)

System/Unit: AHU/RTU

Asset: RTU-2 AREA:

Unit Data		
	Design	**Actual**
MFG	NA	YORK
Serial Num	-	N2H3841320
Model Num	NA	XYE05A1B1AA1A111A3
Configuration	VERTICAL	VERTICAL
Num OA Filters 1	-	1
OA Filter Size 1	-	12X25
Num PreFilter 1	-	4
PreFilter Size 1	-	16X16X2

Test Data		
	Design	**Actual**
SF CFM	1600	1630
SF RPM	1120	1130
RA CFM	1175	1209
OA CFM	425	422
RL Voltage	208	243/244/244
RL Amperage	7.6	5.5/5.5/5.5
OA Damper Position	-	27%
Brake Horse Power	0.84	1.14

Motor Data		
	Design	**Actual**
Motor MFG	-	MARATHON
Frame	-	56HZ
Horsepower	1.50	1.5
Motor Rpm	-	1725
Phase	1	1
Rated Voltage	208	230
Rated Amperage	7.6	7.2
Service Factor	-	1.15

Performance Data		
	Design	**Actual**
MA Plenum SP	-	-0.55"
Fan Suction SP	-	-0.65"
Fan Discharge SP	-	0.38"
Total ESP	0.65	0.93"
Fan Total SP	-	1.03"

Drive Data	
	Actual
Motor Sheave Size	1VL34
Motor Bore Size	5/8"
Motor Sheave SetPt	3 TURNS OPEN
Fan Sheave Size	AK46
Fan Sheave Bore	3/4"
Belt CL Distance	15-1/4"
Num of Belts	1
Belt Size	A39

Completed By: Zack Eismin on 03/10/2025

Unit Data - PHOTO LOG

03/10/2025

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Project:Riverbank Community Center (Riverbank, CA)

AHU/RTU

Diffuser Supply (GRD)

RTU-2/

Asset							
Asset Name	**Location**	**Type**	**Size**	**DESIGN CFM**	**CFM(1)**	**FINAL CFM**	**% to design**
SGRD1	MEETING	CS-1	10	400	300	391	97.8
SGRD2	MEETING	CS-1	10	400	302	411	102.8
SGRD3	MEETING	CS-1	10	400	267	403	100.8
SGRD4	MEETING	CS-1	10	400	413	425	106.3
Total				1600	1282	1630	101.88%

Diffuser Ret/Exh (GRD)

RTU-2/

Asset								
Asset Name	**Type**	**Size**	**DESIGN CFM**	**AK**	**CFM(1)**	**CFM(2)**	**FINAL CFM**	**% to design**
EGRD1	CR-1	14	587	1	612	612	612	104.3
EGRD2	CR-1	14	588	1	597	597	597	101.5
Total			1175		1209	1209	1209	102.89%

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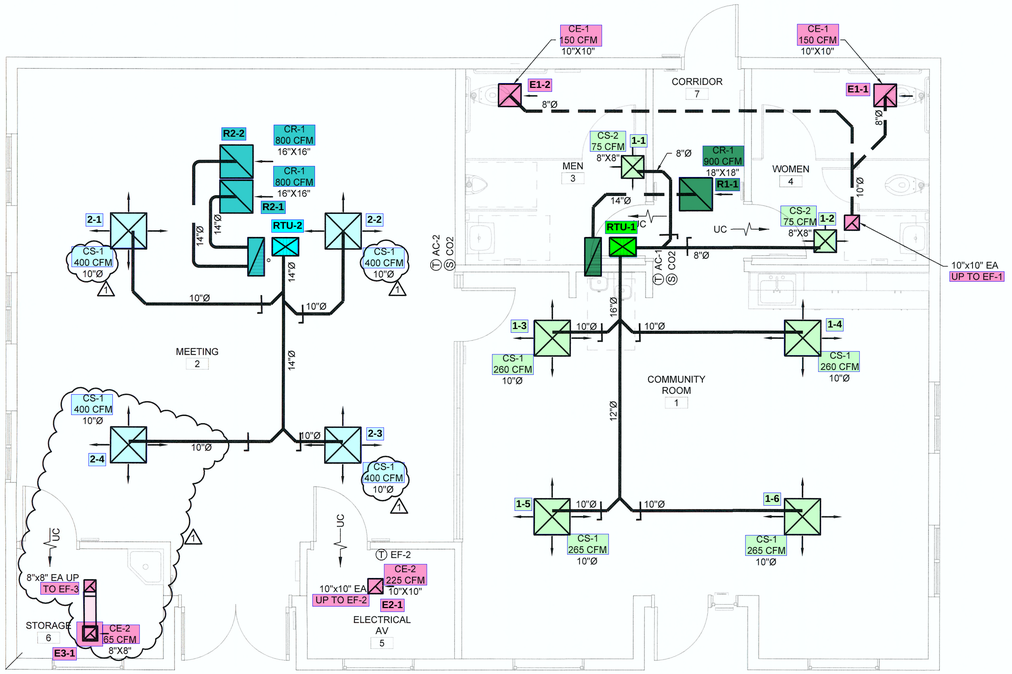
Abbreviation List

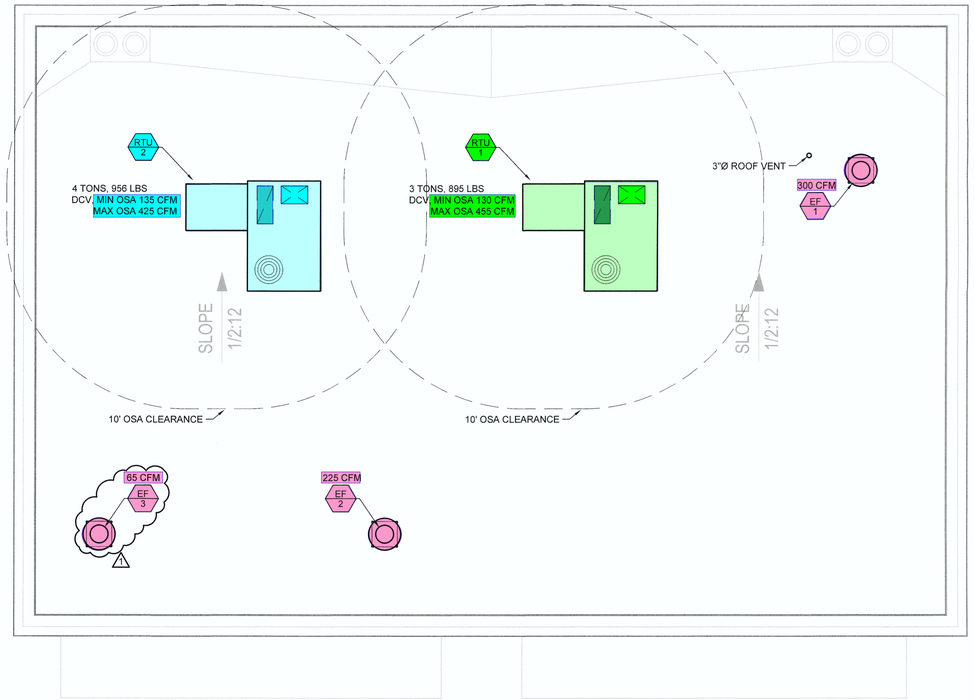
A = Area (ft^2)	S.F. = Service Factor
AHU = Air Handling Unit	SF = Supply Fan
A_k = Effective Area	SP = Static Pressure
BHP = Brake Horsepower (IP) HP	SR = Supply Register
Btu = British Thermal Unit	T = Temperature
Btu/h = Btuh = BTUH = BTU/Hour	T_{ma} = Mixed Air Temperature
CL = Center Distance (used in belt formula)	T_{oa} = Outside Air Temperature
CD = Ceiling Diffuser	T_{ra} = Return Air Temperature
CF = Correction Factor	H = Head (in wc, ft wc, psi)
CFM = Volumetric Flow: Cubic Feet Per Minute	h = Enthalpy
CO2 = Carbon Dioxide	HP = Horsepower
CO = Carbon Monoxide	hr = Hour
C_v = Flow Constant	K_v = Flow constant (SI)
d = Diameter (in.) IP	kW = Kilowatt = 1000 Watts
Δ = Difference or Change (Final - Initial)	LAT = Leaving Air Temperature
DB = Dry Bulb	lb = Pounds
EA = Exhaust Air	LWT = Leaving Water Temperature
EAT = Entering Air Temperature	ma = Mixed Air
EF = Exhaust Fan	MIN = Minimum
Eff = Efficiency	MAX = Maximum
EG = Exhaust Grille	N/A = Not Applicable
ESP = External Static Pressure	NA = No Access
EWT = Entering Water Temperature	NL = Not Listed
°F = Degrees Fahrenheit, °F	NPSHA = Net Positive Suction Head Available
FPB = Fan Powered Box	NS = Not Specified
FLA = Full Load Amps	OA = Outside Air
fpm = Feet per Minute (fpm)	OAT = Outside Air Temperature
ft = Foot	PD = Sheave Pitch Diameter
gal = Gallons	P.D. = Pressure Drop
GPM = Gallons Per Minute (GPM)	PF = Power Factor
h = Enthalpy (BTU/lb dry air)	SG = Supply Grille
P = Pressure	SR = Supply Register
ppm = parts per million	TP = Total Pressure
psi = Pounds Per Square Inch	T_{ra} = Return Air Temperature
psid = PSI Differential	TS = Tip Speed (fpm) IP, (m/s) SI
r = Radius (in)	TSP = Total Static Pressure
$\%_{ra}$ = % of Return Air	V = Velocity
RA = Return Air	VAV = Variable Air Volume
RAT = Return Air Temperature	VD = Volume Damper
RF = Return Fan	VFD = Variable Frequency Drive
RG = Return Grille	W = Watt
RH = Relative Humidity	WB = Wet Bulb
RPM = Revolutions Per Minute	wg = wc = water gauge = water column
RTU = Roof Top Unit	WHP = Water Horsepower (IP)
SA = Supply Air	ω = Humidity Ratio

Function		Range	Minimum Accuracy	Instrument Information	Calibration Date	Date Due
AIR	AIR PRESSURE	0 in wg to 10 in wg	2% +/- 0.001 in wg	Evergreen S-PVF-1 S/N 24D-00271	4/9/2024	4/9/2025
	AIR VELOCITY INSTRUMENT	50 fpm to 3900 fpm	+/- 5 % +/- 7 fpm	Evergreen S-PVF-1 S/N 24D-00271	4/9/2024	4/9/2025
	DIRECT HOOD READING	100 cfm to 2000 cfm	+/- 5 % +/- 7 cfm	Evergreen S-PVF-1 S/N 24D-00271	4/9/2024	4/9/2025
TEMPERATURE	AIR METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	7/12/2024	7/12/2025
	AIR PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 5028	7/12/2024	7/12/2025
	IMMERSION METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	7/12/2024	7/12/2025
	IMMERSION PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 1075	7/12/2024	7/12/2025
	CONTACT METER	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - SRH77A S/N 071118034	7/12/2024	7/12/2025
	CONTACT PROBE	-20 F to 240 F	+/- .5 % 2 F	Cooper ATKINS - PD1388 7-6 S/N 4011	7/12/2024	7/12/2025
HUMIDITY	HUMIDITY PROBE	10 % RH to 90 % RH	3% of reading	Cooper ATKINS - SRH77A S/N 071118034	7/12/2024	7/12/2025
ELECTRICAL	VOLTAGE MEASUREMENT	0 VAC to 600 VAC	2 % reading +/- 5 digits	Fluke 373 True RMS, S/N: 33290686	7/12/2024	7/12/2025
	AMPERAGE MEASUREMENT	0 Amperers to 100 Amperes	2 % reading +/- 5 digits	Fluke 373 True RMS, S/N: 33290686	7/12/2024	7/12/2025
ROTATION	ROTATION MEASUREMENT	60 rpm to 5000 rpm	2 % reading 2 rpm	SHIMPO DT-207LR S/N: D1530081R	7/12/2024	7/12/2025
HYDRONIC	PRESSURE MEASUREMENT	-30 in Hg to 200 psi	±2% of reading +/- 1 psi	Alnor HM675 S/N: 72214041	5/2023	5/2024
	DIFFERENTIAL PRESSURE MEASUREMENT	0 psi - 80 psi	±2% of reading +/- 1 psi	Alnor HM675 S/N: 72214041	5/2023	5/2024



1 M2.1 MECHANICAL - FLOOR PLAN

SCALE: 1/4" = 1'- 0"



2 M2.1 MECHANICAL - ROOF PLAN

SCALE: 1/4" = 1'- 0"

TPH architects
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(209)606-7052
CONSULTING MECHANICAL ENGINEERS

REGISTERED PROFESSIONAL ENGINEER BRIAN BOUDREAU M33714 JUNE 30, 2025 MECHANICAL STATE OF CALIFORNIA

Consultants

RIVERBANK COMMUNITY CENTER

STANISLAUS RFEGIONAL HOUSING AUTHORITY

MECHANICAL - FLOOR AND ROOF PLAN

No.	Description	Date
1	BACK CHECK	3/13/24

Project Number	2142/BEI 23125
Date	DEC 2023
Drawn by	JCK
Checked by	BEB

M2.1

Plot Date & Time 9/12/2023 11:54:49 AM