



April 8th, 2025

Project: **Vista Academy (VAPA) Kitchen**

To Whom It May Concern:

Thank you for allowing Accurate Concrete Moisture Testing to perform the concrete slab moisture testing for the Vista Academy (VAPA) Kitchen project located at 600 N. Santa Fe Avenue, Vista, CA 92083. Concrete moisture and surface pH readings were taken at four various locations on the ground floor level. The concrete moisture was measured by two different methods; internal relative humidity and moisture vapor emission rate. The internal relative humidity (RH) was determined by using the in-situ probe testing method, performed in accordance with the procedure set forth by the American Society of Testing and Materials (ASTM) F2170-19a and the testing equipment manufacturer's instructions. The concrete moisture vapor emission rate (MVER) was determined by using the anhydrous calcium chloride testing method, performed in accordance with the procedure set forth by the American Society of Testing and Materials (ASTM) F1869-23. You will find the results of the concrete Internal Relative Humidity (RH), Moisture Vapor Emission Rate (MVER), along with the concrete surface pH level and concrete surface porosity condition, test locations, and other useful information on the attached pages.

The concrete internal Relative Humidity (RH) is located in the column with the bold border, labeled "Relative Humidity in Concrete". This reading is displayed as the percentage of relative humidity. Relative Humidity is the ratio of the amount of water vapor actually in the air compared to the amount of water vapor required for saturation at that particular temperature and pressure, expressed as a percentage. This test was performed using the "CMEXPERT II" system with the Hydro-I® in situ probes, manufacturer by Tramex®. The in-situ probes are NIST (National Institute of Standards and Technology) traceable and the calibration is checked per the requirements of ASTM F2170-19a. The individual in-situ probe serial #'s are shown on the attached form with the test site readings.

The concrete moisture vapor emission rate (MVER) is located in the column with the bold border, labeled "(MVER) Results". This reading is the quantity of moisture, expressed as the rate of moisture vapor emission, measured in pounds of moisture over a 1000 square foot area during a 24-hour period. These tests were performed using new test kits manufactured by VaporScore, Inc. The test kits were weighed within 24 hours prior to placement and within 12 hours after completion of testing. The calibration of the scale was checked using a 20g weight immediately prior to the pre-weight and post-weight recordings.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



The concrete surface pH levels are also recorded on the attached report. The pH is a measure of the concentration of acid ions in a solution. A reading of 7 is considered neutral. The surface of cured concrete should have an approximate surface pH of 9 and new concrete will typically have a surface pH of 12 to 13. This is mostly due to calcium hydroxide, which is a normal by-product of cement hydration. As a concrete surface reacts with carbon dioxide in the air, the pH of the surface is gradually reduced through a process called carbonation. Therefore, if the concrete has not had proper time or air exposure, it may have high surface pH readings. If the surface of the concrete has been removed by bead-blasting, grinding, or other means, the surface may have high surface pH readings. Additionally, if the concrete has access to a continuing water source, such as direct contact to moist earth below, dissolved alkalis and hydroxides can be carried to the surface resulting in a high pH level. This test was performed using an electronic "Concrete pH Meter" serial #2304326, model "pH 100", manufactured by Extech. The meter is calibrated weekly.

The substrate water absorption verification "surface porosity" was also recorded at each test site. This test determines whether or not a substrate surface readily absorbs water. These test results are recorded as a YES (absorbs water in 1 minute) or NO (did not absorb water in 1 minute). A result of "NO" does not mean the surface is non-porous, it confirms the substrate surface did not readily absorb water in the tested time frame of 1 minute. A few reasons a substrate surface may be considered non-porous per this test are existing floor coverings, contaminants, coatings, sealers, curing compounds, and densely machine-troweled concrete, and mature or well-hydrated concrete. This test was performed using the method "single drop method" outlined per ASTM F3191-23 "Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring", with a light, hand-sanding of the surface tested. This method may differ from the requirement of the material being applied to the surface. This test should be conducted by the flooring installer, after the completion of the substrate preparation, prior to the installation of each material, using the product manufacturer's recommended method or the single-drop in 1 minute method, as described above, when the material manufacture does not specify the procedure.

Please check these internal relative humidity (RH), concrete moisture vapor emission rate (MVER), and surface (pH) readings with the floor covering or coating manufacturer and floor covering adhesive and/or installation system guidelines and instructions before proceeding with the installation of any floor covering or floor coating. Different flooring manufacturers, flooring products, and installation systems vary in the allowable percentage of relative humidity, amount of moisture vapor emission rate, and level of the surface pH.

The conditioning of the space to be tested is an important requirement to comply with the ASTM F2170-19a and ASTM F1869-23 requirements. The concrete slab and the occupied air space above the floor slab are required to be at the temperature and humidity expected during service condition (expected use of the space) during the testing process prior to recording the measurements.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



Findings:

1. The structure tested is a single-level, commercial / institutional use building and is located on a grade school campus.
2. We were unable to confirm the age of the building.
3. The building exterior appears to be CMU block construction with a stucco finish.
4. The exterior perimeter of the building is pavement and irrigated landscaping in planter-beds to the south, west, and south-half of the east side, and pavement only to the north and north-half of the east side.
5. The topography of the building is a hill which slopes up toward the north and west, and down toward the south and east.
6. Test site #1 was conducted near an exterior wall.
7. The space tested was occupied and in-use as kitchen and office at the time of testing.
8. The space tested does have a functioning HVAC system. That system was operating under normal conditions prior to and throughout the duration of testing. See items 7 through 9 in the "Summary of Data Collected" section below.
9. The concrete slab tested is a slab-on-grade construction.
10. There is existing resilient tile flooring installed at test site #1 and two layers of resilient sheet flooring installed at test sites 2, 3, & 4. Resilient flooring has a low permeate rating (the rate at which moisture can pass through) and restricts concrete moisture and/or subgrade moisture from passing through.
11. Beneath the resilient sheet flooring installed at test sites 2, 3, & 4, there is a cement topping material, approximately 1/4" thick. This cement material was in a damp condition.
12. Due to the presence of the existing floor covering, we were not able to confirm the presence of any concrete slab in-fills. Slab in-fills are sections of the concrete slab which have been removed and replaced, usually for utilities, and are not part of the original concrete slab and may have different levels of concrete moisture than the original concrete slab.

Summary of Data Collected:

1. The **Concrete Internal Relative Humidity (RH)** ranged from (**88%)** to (**93%)**.
2. The **Concrete Moisture Vapor Emission Rate (MVER)** ranged from (**6.8 lbs.)** to (**18.8 lbs.)**.
3. The **Concrete Surface pH** test results ranged from (**8.7)** to (**11.2)**.
4. The **Concrete Surface Porosity** test results were a **NO** at all test site locations. The surface of the concrete slab did not absorb water using the procedure outlined per ASTM F3191-23 & ASTM F710-22.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



Summary of Data Collected continued:

5. The concrete slab thickness is 3 inches and was confirmed by a visual inspection of a penetration made near test site #3.
6. An inspection 4 inches below the concrete slab was performed at the penetration made near test site #3. The presence, location, and/or quality of an under-slab vapor retarder were not confirmed; however, it was confirmed there is visually moist soil in direct contact with the bottom of the concrete slab. When a concrete slab is in direct contact with on-grade soil or aggregate, without a properly functioning under-slab vapor retarder, the slab can allow available ground moisture to permeate through it and the concrete slab moisture conditions may change depending on the availability to ground moisture, environmental conditions, and permeate rating of the floor covering or coating applied to the surface of the concrete slab.
7. The building ambient air temperature/condition did meet the requirements of ASTM F2170-19a and ASTM F1869-23. See item #9 below.
8. A "THC-4 Data Logger" manufactured by Inkbird (unit #ACMT-43) was placed near test site #4 to track the building ambient air conditions. Readings were taken throughout the testing process and those results are attached and noted below.
9. The ambient air temperature readings ranged from 64° to 74°, with an average of 69°. The ambient air relative humidity readings ranged from 50% to 64%, with an average of 57%. These readings were recorded during occupied use of the space.
10. The quantity of tests performed was determined by Accurate Concrete Moisture Testing to meet the quantity requirements of ASTM F2170-19a for the size of the areas tested.

NOTE:

The concrete slab moisture or surface pH is not measured at joints or cracks in the slab. These locations may be subject to movement and/or separation. At slabs on ground, we recommend that a quality, moisture impervious crack sealant should always be used at these locations prior to the installation of floor coverings or coatings.

Thank you for the opportunity to provide the concrete slab moisture testing for this project. Please let me know if you have any questions or if I may be of further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael Bivins", with a stylized flourish at the end.

Michael Bivins
Certified Testing Technician

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



www.AccurateCMT.com

mb@accuratecmt.com

ASTM F2170-19a Data & Results of Relative Humidity in Concrete Testing

PROJECT: Vista Academy Kitchen
ADDRESS: 600 North Santa Fe Avenue
Vista, CA 92083

Testing Performed By: Michael Bivins

RH Reader & Serial #: Tramex # 12156222

pH Reader & Serial #: Extech # 2304326

Test #	Location	"RH" in Concrete	Dew Point	Temp in Concrete	Surface Temp.	Probe Depth	Probe Serial Number	Test Date	Test Time	p.h. Test Result	Surface Absorbs Water	Ambient Air Temp	Ambient Air "RH"	Comments / Notes
1	see attached floor plan	88%	62.0°	65°	66.3°	1.6"	BA00180	5/5/2025	6:25 AM	10.5	NO	68°	60%	Resilient Tile, Near Exterior Wall
2	see attached floor plan	93%	59.5°	61°	62.2°	1.6"	BA00181	5/5/2025	6:30 AM	8.9	NO	68°	60%	Two Layers of Resilient Sheet Flooring
3	see attached floor plan	90%	62.7°	65°	66.4°	1.6"	BA00184	5/5/2025	6:33 AM	11.2	NO	68°	60%	Two Layers of Resilient Sheet Flooring
4	see attached floor plan	89%	62.6°	66°	67.1°	1.6"	BA00183	5/5/2025	6:38 AM	8.7	NO	68°	60%	Two Layers of Resilient Sheet Flooring

Summary:	Concrete Thickness	Lowest "Internal RH" Result	Highest "Internal RH" Result	Concrete Slab Location	Under-Slab Vapor Retarder
	3 inches	88.0%	93.0%	Slab-on-Grade	None found 4" below slab

NOTES:

1. The tests for determining Relative Humidity in concrete floor slabs using in situ probes were performed in accordance with the test procedure outlined by ASTM F2170-19a
2. Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F2170-19a.5.3
3. Tests were performed using "Tramex CMEXII with Hydro-I" meter and in-situ probes
4. All In-situ probes are NIST* calibrated and traceable with a $\pm 2\%$ range of accuracy up to 90%. *National Institute of Standards and Technology
5. Moisture levels may vary with seasonal changes in temperature, humidity, rainfall amounts, and most importantly; availability to a free water source (i.e. slab design).



WWW.ACCURATECMT.COM

mb@accuratecmt.com

ASTM F1869-22

Data & Results of Concrete Moisture Vapor Emission Test

PROJECT: Vista Academy Kitchen
ADDRESS: 600 North Santa Fe Avenue
Vista, CA 92083

Job # _____
Testing Performed By: Michael Bivins
Test Kit Manufacturer: VaporScore

pH Test Meter: Extech #2304326

Test #	Location	Initial Wt. (grams)	Final Wt. (grams)	Start		End		Elapsed Time (hours)	(MVER) Results (lbs./1000sq.ft./day)	p.H. Test Result	Surface Absorbs Water	Surface Temp.	Ambient Air Temp.	Ambient Relative Humidity	Notes / Comments
				Day	Time	Day	Time								
1	see test plan	32.3	36.8	5/2/25	1:46 PM	5/5/25	6:28 AM	64.75	8.3	10.5	NO	66.3°	68°	60%	Resilient Tile, Near Exterior Wall
2	see test plan	32.6	42.8	5/2/25	1:49 PM	5/5/25	6:31 AM	64.75	18.8	8.9	NO	62.2°	68°	60%	Resilient Sheet Flooring
3	see test plan	32.4	37.4	5/2/25	1:54 PM	5/5/25	6:35 AM	65	9.2	11.2	NO	66.4°	68°	60%	Resilient Sheet Flooring
4	see test plan	32.4	36.1	5/2/25	1:58 PM	5/5/25	6:40 AM	64.75	6.8	8.7	NO	67.1°	68°	60%	Resilient Sheet Flooring

Summary: Tests < 3 lbs.

0

Tests 3 - 5 lbs.

0

Tests 5 - 8 lbs.

1

Tests > 8 lbs.

3

Slab Thickness

3 inches

Under-Slab Vapor Retarder

None found 4" below slab

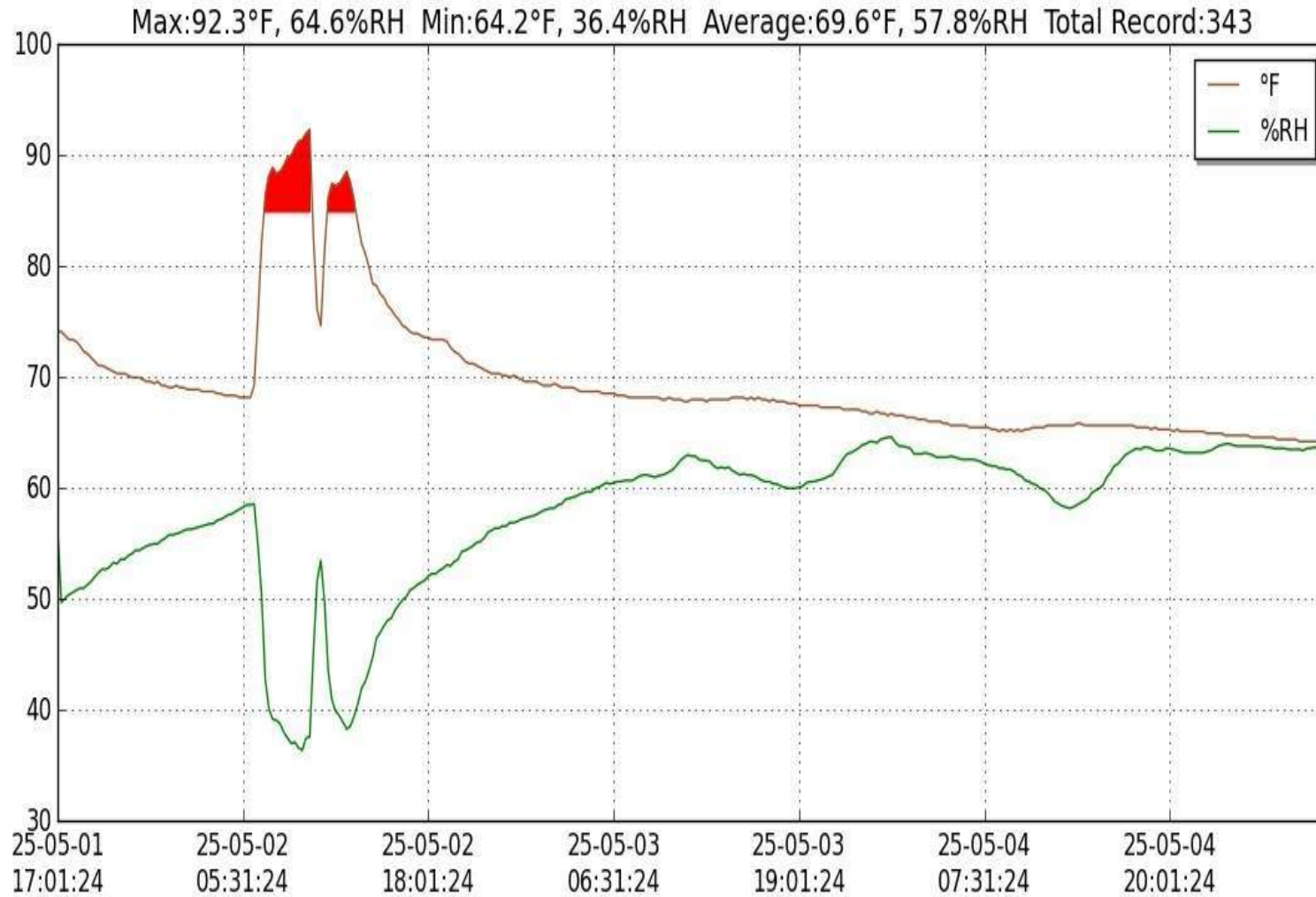
NOTES:

The moisture vapor emission tests were performed in accordance with the test procedure outlined by ASTM F-1869-22

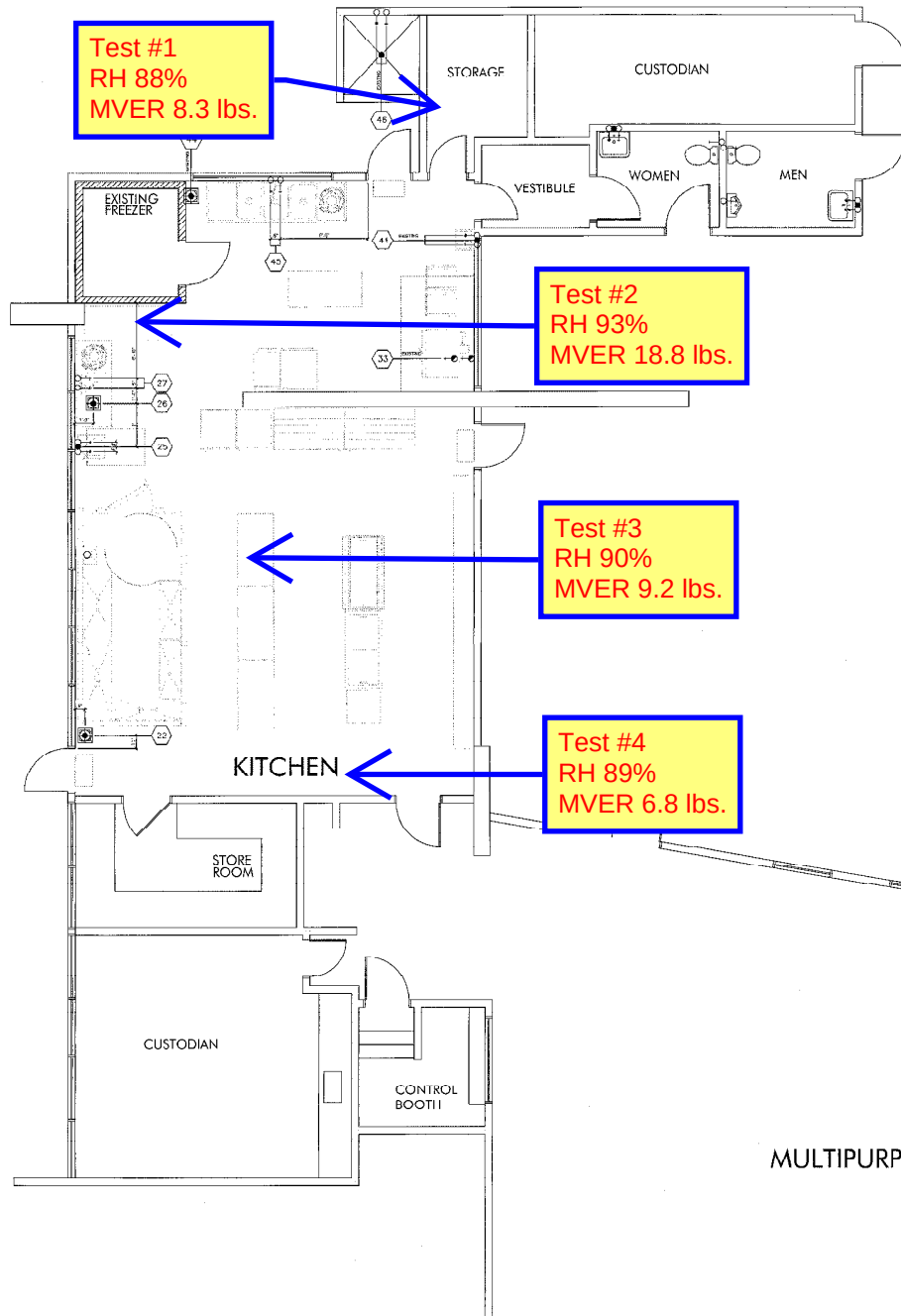
Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F1869-22.4.1

The test results provide a "snapshot" of the moisture vapor transmission. Emission rates will vary with seasonal changes in temperature, humidity, rainfall amounts, and availability to a free water source.

Ambient Air Conditions during Testing



Concrete Moisture Testing Locations



PLUMBING NOTES:

1. ALL PLUMBING SHALL BE IN ACCORDANCE WITH THE CITY OF SAN ANTONIO PLUMBING CODE AND THE CITY OF SAN ANTONIO PLUMBING CODE.
2. PLUMBING CONTRACTOR TO VERIFY ALL EXISTING SERVICE AND MAKE FINAL CHECK-UP TO ALL APPLICABLE EQUIPMENT AND TO PROVIDE ALL FINAL TESTS, INCLUDING PRESSURE TESTING, TO THE SATISFACTION OF THE CITY OF SAN ANTONIO.
3. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL INDIVIDUAL SHUT-OFF VALVE ON ALL WATER, WASTE AND GAS LINES.
4. ALL FLOOR AND WALL PENETRATIONS MUST BE SEALED WATER-TIGHT AND VAPOR-TIGHT.
5. HORIZONTAL DIMENSIONS SHOWN ARE FROM FINISHED FACE OF WALL TO CENTER LINE OF STUB-OUT OR FROM CENTER LINE OF STUB-OUT TO CENTER LINE OF STUB. UNLESS NOTED OTHERWISE ON PLAN OR DETAIL, VERIFY ALL DIMENSIONS AT THE JOB SITE.
6. ALL SYMBOLS NOTED +12" +18" ETC. TO STUB-OUT OF WALL AT HEIGHT INDICATED. HEIGHT IS GIVEN FROM FINISHED FLOOR TO CENTER LINE OF STUB-OUT. ALL STUB-UP NOTED "STUB-OUT ARE TO STUB-UP ABOVE FINISHED FLOOR.
7. ALL FLOOR SINKS SPROWN ARE 14" OR 20" FLOOR WITH FINISHED FLOOR, HANGERS WITH LEGAL AIR GAP.
8. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL REMOVABLE COVERS OR GRILLS FOR ALL FULLY OR PARTIALLY EXPOSED FLOOR SINKS.
9. PLUMBING CONTRACTOR TO PROVIDE DRAIN LINES FROM ALL APPLICABLE COMPONENTS INCLUDING SINKS, TUBS, SHOWERS, AND ANY REMOTE REFRIGERATION TO FLOOR SINK.
10. FLOOR SINK FROM DISH & GLASS WASHING MACHINE TO HAVE 2" DRAIN PIPE.
11. PLUMBING CONTRACTOR TO PROVIDE PRESSURE REGULATING VALVE FOR GAS SERVICE, ALL 1/2" UP AND DOWN REQUIRED.
12. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL PRESSURE REGULATING VALVES WHERE APPLICABLE.
13. IT IS RECOMMENDED THAT ALL POTABLE WATER LINES HAVE FILTERED WATER FILTERS TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR AND/OR OWNER.
14. IT IS RECOMMENDED THAT THE INLET WATER FOR THE WATER HEATER BE SOFTENED. THIS TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR AND/OR OWNER.
15. WATER HEATER TO BE SIZED AND PROVIDED FOR ADEQUATE WATER DEMAND BY PLUMBING CONTRACTOR. VERIFY LOCATION.
16. GAS PIPING TO BE BLACK STEEL PIPE WITH MALLEABLE SCREWED FROM FITTINGS.
17. EACH PIECE OF EQUIPMENT SHOULD HAVE ITS OWN GAS COCK AND UNION SHUT-OFF VALVE.
18. FLOOR MATERIAL TO SLOPE 1/4" PER FOOT TOWARD FLOOR DRAINS WHERE APPLICABLE.
19. ALL SOAP AND TOWEL DISPENSERS AND RESTROOM FIXTURES TO BE PROVIDED AND INSTALLED BY GENERAL CONTRACTOR.
20. WATER HEATER/BOILER WILL COMPLY WITH SEC. 1601(C)(1) P.C. 31 FOR THERMAL EXPANSION REQUIREMENTS.
21. ALL LAVATORY FAUCETS IN REST ROOMS SHALL BE THE SELF-CLOSING TYPE. PROVIDE VACUUM BREAKERS AT HOSE BIBS IF APPLICABLE. PROVIDE SELF-CLOSING PLUMB TOILETS IF APPLICABLE.
22. PLUMBING TO PROVIDE ACCESSIBLE FLOW CONTROL ON THE GREASE TRAP, OTC SECTION 31.05.
23. PLUMBING TO PROVIDE ALL KITCHEN EQUIPMENT'S FINAL VENT, WATER AND WASTE LINES FROM UPS PER PLANS AND SPECIFICATIONS.
24. WATER SUPPLY TO CONDENSATORS SHALL BE PROTECTED BY AN APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, TO BE RETIRED BY AN AREA ACCESSIBLE FOR TESTING. RELIEF VALVE SHALL BE SUBJECT TO SINKER WITH A LEGAL AIR GAP.
25. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE PROPERLY INSTALLED. VENTING SHALL BE PERMITTED TO EXHAUST OUTSIDE THE BUILDING. NO WATER SHALL BE A SOURCE OF CONTAMINATION. NOSES SHALL NOT BE ATTACHED TO A FAUCET OR HOSE BIB UNLESS AN APPROVED BACKFLOW PREVENTER IS PROVIDED.

WATER HEATER CALCULATIONS

PER HEALTH DEPARTMENT

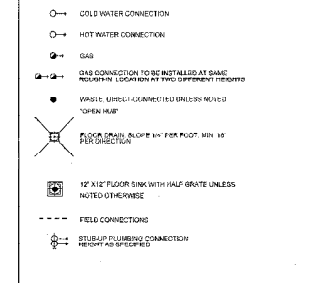
1. MOP SINK	- 15 GPH
1. 3-COMP. POT SINK	- 42 GPH
2. HAND SINK	- 10 GPH
1. FOOD PREP. SINK	- 5 GPH
2. LAVATORY SINK	- 10 GPH
TOTAL	- 82 GPH

$$\frac{82 \times 60 \times 8.33}{75} = 54,645 \text{ BTU}$$

WATER HEATER SPECIFICATION

MANUFACTURE: A.O. SMITH OR EQUAL
MODEL: BT-65 OR EQUAL
TANK SIZE: 65 GAL
BTUH: 65,000
RECOVERY: 100 GPH @ 60° RISE

PLUMBING LEGEND:



REVISIONS

COOLER AT VAPA
VISTA ACADEMY OF PERFORMING ARTS
600 N. SANTA FE AVE., VISTA, CA 92083
VISTA UNITED SCHOOL DISTRICT
1234 ARCADE AVE., VISTA, CA 92084



ALPHA STUDIO
Design Group
6152 Innovation Way
Carlsbad, CA
92009
P: 760 431-2444
F: 760 431-2440

www.alpha-studio-design.com



@PLTDATE

APPROVALS

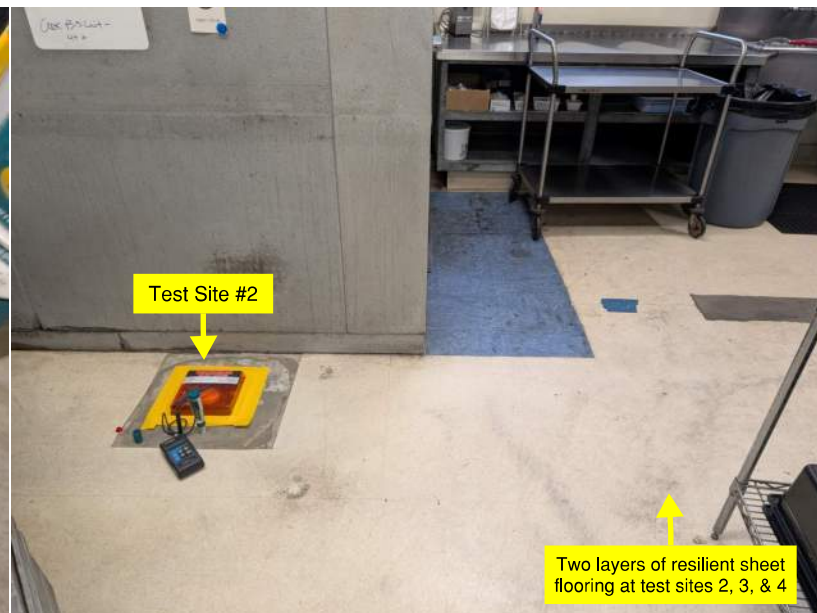
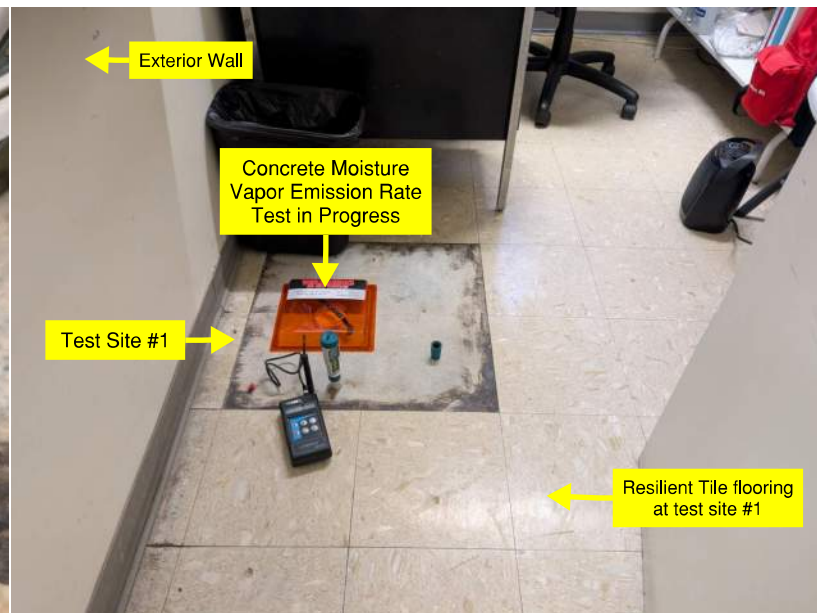
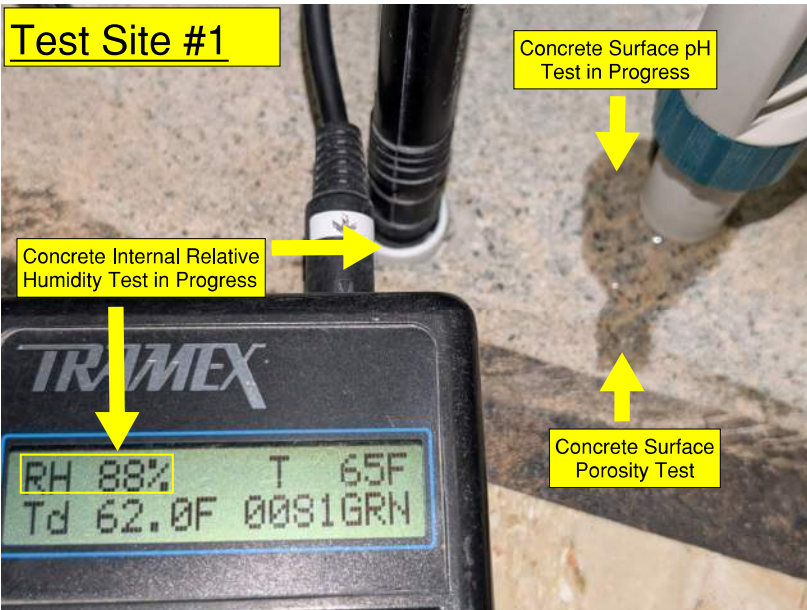
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04
AC: RLS SS
DATE:

FS EQUIPMENT PLUMBING
ROUGH-IN PLAN
VISTA ACADEMY OF
PERFORMING ARTS

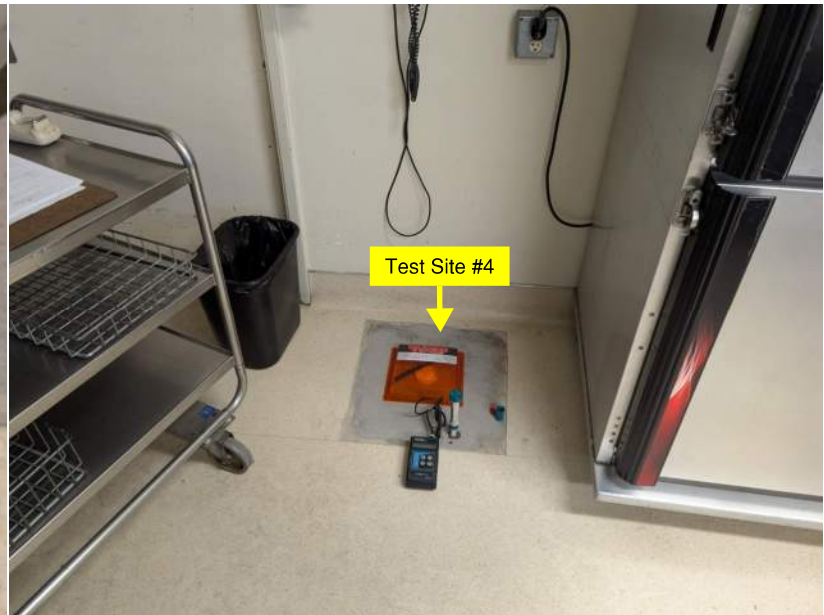
FS-4.0

PLT Date: @RTDATELONG

ASEG JOB NUMBER: 13-034



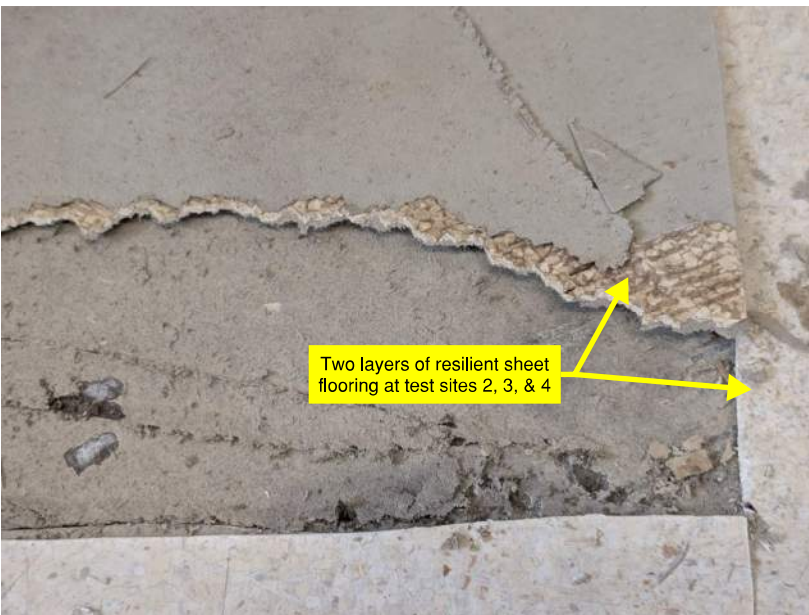
Test Site #4



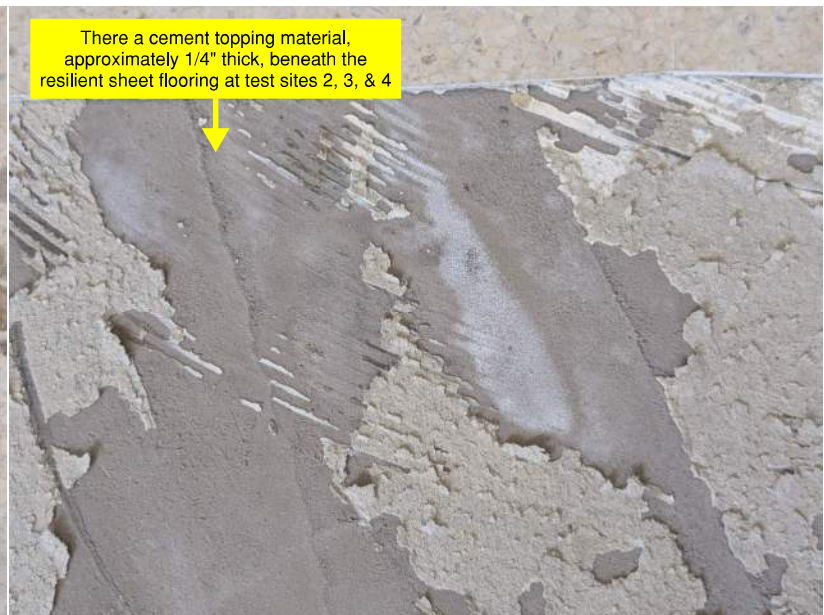
Concrete Slab thickness verification



Total depth inspected for an under-slab vapor retarder



Two layers of resilient sheet flooring at test sites 2, 3, & 4



There a cement topping material, approximately 1/4" thick, beneath the resilient sheet flooring at test sites 2, 3, & 4

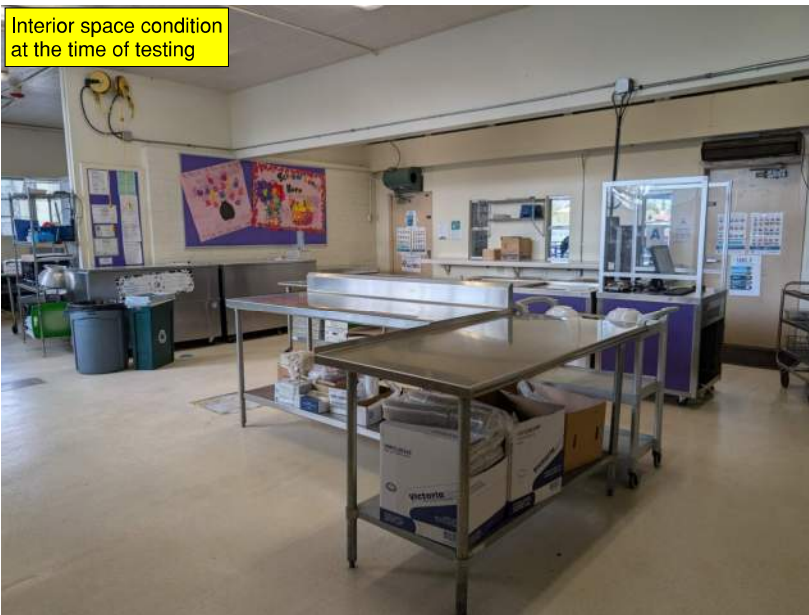
Interior space condition
at the time of testing



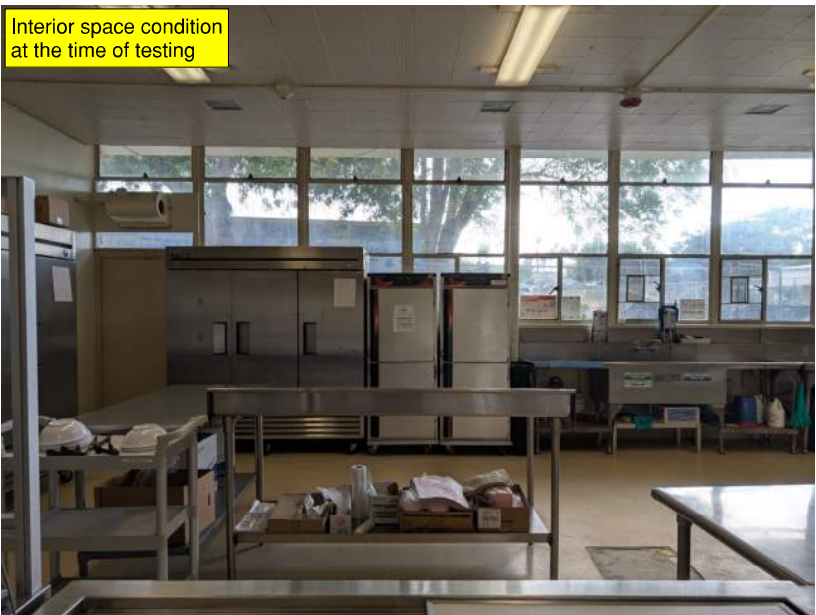
Interior space condition
at the time of testing



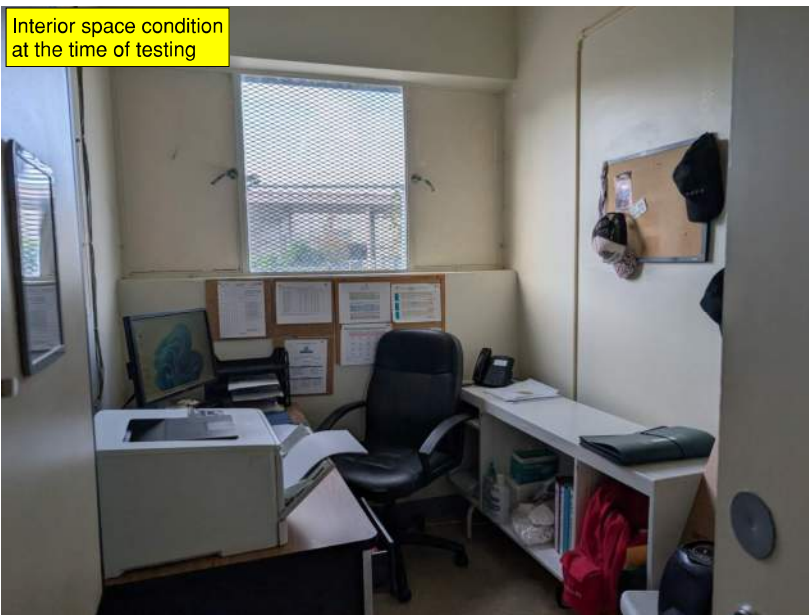
Interior space condition
at the time of testing



Interior space condition
at the time of testing



Interior space condition
at the time of testing



Interior space condition
at the time of testing



North-West corner
of the building



West side of
the building



South-West corner
of the building



South-West corner
of the building



South side of
the building



East side of
the building



Certificate of Certification

presented to

Michael Bivins

*for the successful completion of the ICRI Certification
requirements and is hereby recognized as an*

ICRI Concrete Slab Moisture Testing Technician - Grade 1

Date Certified: 1/25/2024
Valid Through: 1/25/2029



A handwritten signature in black ink that reads "Dale A. Regnier". The signature is written in a cursive style with a horizontal line underneath it.

Dale A. Regnier
Program Director



April 8th, 2025

Project: **Vista Academy (VAPA) Kitchen**

To Whom It May Concern:

Thank you for allowing Accurate Concrete Moisture Testing to perform the concrete slab moisture testing for the Vista Academy (VAPA) Kitchen project located at 600 N. Santa Fe Avenue, Vista, CA 92083. Concrete moisture and surface pH readings were taken at four various locations on the ground floor level. The concrete moisture was measured by two different methods; internal relative humidity and moisture vapor emission rate. The internal relative humidity (RH) was determined by using the in-situ probe testing method, performed in accordance with the procedure set forth by the American Society of Testing and Materials (ASTM) F2170-19a and the testing equipment manufacturer's instructions. The concrete moisture vapor emission rate (MVER) was determined by using the anhydrous calcium chloride testing method, performed in accordance with the procedure set forth by the American Society of Testing and Materials (ASTM) F1869-23. You will find the results of the concrete Internal Relative Humidity (RH), Moisture Vapor Emission Rate (MVER), along with the concrete surface pH level and concrete surface porosity condition, test locations, and other useful information on the attached pages.

The concrete internal Relative Humidity (RH) is located in the column with the bold border, labeled "Relative Humidity in Concrete". This reading is displayed as the percentage of relative humidity. Relative Humidity is the ratio of the amount of water vapor actually in the air compared to the amount of water vapor required for saturation at that particular temperature and pressure, expressed as a percentage. This test was performed using the "CMEXPERT II" system with the Hydro-I® in situ probes, manufacturer by Tramex®. The in-situ probes are NIST (National Institute of Standards and Technology) traceable and the calibration is checked per the requirements of ASTM F2170-19a. The individual in-situ probe serial #'s are shown on the attached form with the test site readings.

The concrete moisture vapor emission rate (MVER) is located in the column with the bold border, labeled "(MVER) Results". This reading is the quantity of moisture, expressed as the rate of moisture vapor emission, measured in pounds of moisture over a 1000 square foot area during a 24-hour period. These tests were performed using new test kits manufactured by VaporScore, Inc. The test kits were weighed within 24 hours prior to placement and within 12 hours after completion of testing. The calibration of the scale was checked using a 20g weight immediately prior to the pre-weight and post-weight recordings.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



The concrete surface pH levels are also recorded on the attached report. The pH is a measure of the concentration of acid ions in a solution. A reading of 7 is considered neutral. The surface of cured concrete should have an approximate surface pH of 9 and new concrete will typically have a surface pH of 12 to 13. This is mostly due to calcium hydroxide, which is a normal by-product of cement hydration. As a concrete surface reacts with carbon dioxide in the air, the pH of the surface is gradually reduced through a process called carbonation. Therefore, if the concrete has not had proper time or air exposure, it may have high surface pH readings. If the surface of the concrete has been removed by bead-blasting, grinding, or other means, the surface may have high surface pH readings. Additionally, if the concrete has access to a continuing water source, such as direct contact to moist earth below, dissolved alkalis and hydroxides can be carried to the surface resulting in a high pH level. This test was performed using an electronic "Concrete pH Meter" serial #2304326, model "pH 100", manufactured by Extech. The meter is calibrated weekly.

The substrate water absorption verification "surface porosity" was also recorded at each test site. This test determines whether or not a substrate surface readily absorbs water. These test results are recorded as a YES (absorbs water in 1 minute) or NO (did not absorb water in 1 minute). A result of "NO" does not mean the surface is non-porous, it confirms the substrate surface did not readily absorb water in the tested time frame of 1 minute. A few reasons a substrate surface may be considered non-porous per this test are existing floor coverings, contaminants, coatings, sealers, curing compounds, and densely machine-troweled concrete, and mature or well-hydrated concrete. This test was performed using the method "single drop method" outlined per ASTM F3191-23 "Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring", with a light, hand-sanding of the surface tested. This method may differ from the requirement of the material being applied to the surface. This test should be conducted by the flooring installer, after the completion of the substrate preparation, prior to the installation of each material, using the product manufacturer's recommended method or the single-drop in 1 minute method, as described above, when the material manufacture does not specify the procedure.

Please check these internal relative humidity (RH), concrete moisture vapor emission rate (MVER), and surface (pH) readings with the floor covering or coating manufacturer and floor covering adhesive and/or installation system guidelines and instructions before proceeding with the installation of any floor covering or floor coating. Different flooring manufacturers, flooring products, and installation systems vary in the allowable percentage of relative humidity, amount of moisture vapor emission rate, and level of the surface pH.

The conditioning of the space to be tested is an important requirement to comply with the ASTM F2170-19a and ASTM F1869-23 requirements. The concrete slab and the occupied air space above the floor slab are required to be at the temperature and humidity expected during service condition (expected use of the space) during the testing process prior to recording the measurements.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



Findings:

1. The structure tested is a single-level, commercial / institutional use building and is located on a grade school campus.
2. We were unable to confirm the age of the building.
3. The building exterior appears to be CMU block construction with a stucco finish.
4. The exterior perimeter of the building is pavement and irrigated landscaping in planter-beds to the south, west, and south-half of the east side, and pavement only to the north and north-half of the east side.
5. The topography of the building is a hill which slopes up toward the north and west, and down toward the south and east.
6. Test site #1 was conducted near an exterior wall.
7. The space tested was occupied and in-use as kitchen and office at the time of testing.
8. The space tested does have a functioning HVAC system. That system was operating under normal conditions prior to and throughout the duration of testing. See items 7 through 9 in the "Summary of Data Collected" section below.
9. The concrete slab tested is a slab-on-grade construction.
10. There is existing resilient tile flooring installed at test site #1 and two layers of resilient sheet flooring installed at test sites 2, 3, & 4. Resilient flooring has a low permeate rating (the rate at which moisture can pass through) and restricts concrete moisture and/or subgrade moisture from passing through.
11. Beneath the resilient sheet flooring installed at test sites 2, 3, & 4, there is a cement topping material, approximately 1/4" thick. This cement material was in a damp condition.
12. Due to the presence of the existing floor covering, we were not able to confirm the presence of any concrete slab in-fills. Slab in-fills are sections of the concrete slab which have been removed and replaced, usually for utilities, and are not part of the original concrete slab and may have different levels of concrete moisture than the original concrete slab.

Summary of Data Collected:

1. The **Concrete Internal Relative Humidity (RH)** ranged from (**88%)** to (**93%)**.
2. The **Concrete Moisture Vapor Emission Rate (MVER)** ranged from (**6.8 lbs.)** to (**18.8 lbs.)**.
3. The **Concrete Surface pH** test results ranged from (**8.7)** to (**11.2)**.
4. The **Concrete Surface Porosity** test results were a **NO** at all test site locations. The surface of the concrete slab did not absorb water using the procedure outlined per ASTM F3191-23 & ASTM F710-22.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



Summary of Data Collected continued:

5. The concrete slab thickness is 3 inches and was confirmed by a visual inspection of a penetration made near test site #3.
6. An inspection 4 inches below the concrete slab was performed at the penetration made near test site #3. The presence, location, and/or quality of an under-slab vapor retarder were not confirmed; however, it was confirmed there is visually moist soil in direct contact with the bottom of the concrete slab. When a concrete slab is in direct contact with on-grade soil or aggregate, without a properly functioning under-slab vapor retarder, the slab can allow available ground moisture to permeate through it and the concrete slab moisture conditions may change depending on the availability to ground moisture, environmental conditions, and permeate rating of the floor covering or coating applied to the surface of the concrete slab.
7. The building ambient air temperature/condition did meet the requirements of ASTM F2170-19a and ASTM F1869-23. See item #9 below.
8. A "THC-4 Data Logger" manufactured by Inkbird (unit #ACMT-43) was placed near test site #4 to track the building ambient air conditions. Readings were taken throughout the testing process and those results are attached and noted below.
9. The ambient air temperature readings ranged from 64° to 74°, with an average of 69°. The ambient air relative humidity readings ranged from 50% to 64%, with an average of 57%. These readings were recorded during occupied use of the space.
10. The quantity of tests performed was determined by Accurate Concrete Moisture Testing to meet the quantity requirements of ASTM F2170-19a for the size of the areas tested.

NOTE:

The concrete slab moisture or surface pH is not measured at joints or cracks in the slab. These locations may be subject to movement and/or separation. At slabs on ground, we recommend that a quality, moisture impervious crack sealant should always be used at these locations prior to the installation of floor coverings or coatings.

Thank you for the opportunity to provide the concrete slab moisture testing for this project. Please let me know if you have any questions or if I may be of further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael Bivins", with a stylized flourish at the end.

Michael Bivins
Certified Testing Technician

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



www.AccurateCMT.com

mb@accuratecmt.com

ASTM F2170-19a Data & Results of Relative Humidity in Concrete Testing

PROJECT: **Vista Academy Kitchen**

ADDRESS: 600 North Santa Fe Avenue

Vista, CA 92083

Testing Performed By: Michael Bivins

RH Reader & Serial #: Tramex # 12156222

pH Reader & Serial #: Extech # 2304326

Test #	Location	"RH" in Concrete	Dew Point	Temp in Concrete	Surface Temp.	Probe Depth	Probe Serial Number	Test Date	Test Time	p.h. Test Result	Surface Absorbs Water	Ambient Air Temp	Ambient Air "RH"	Comments / Notes
1	see attached floor plan	88%	62.0°	65°	66.3°	1.6"	BA00180	5/5/2025	6:25 AM	10.5	NO	68°	60%	Resilient Tile, Near Exterior Wall
2	see attached floor plan	93%	59.5°	61°	62.2°	1.6"	BA00181	5/5/2025	6:30 AM	8.9	NO	68°	60%	Two Layers of Resilient Sheet Flooring
3	see attached floor plan	90%	62.7°	65°	66.4°	1.6"	BA00184	5/5/2025	6:33 AM	11.2	NO	68°	60%	Two Layers of Resilient Sheet Flooring
4	see attached floor plan	89%	62.6°	66°	67.1°	1.6"	BA00183	5/5/2025	6:38 AM	8.7	NO	68°	60%	Two Layers of Resilient Sheet Flooring

Summary: Concrete Thickness

3 inches

Lowest "Internal RH" Result

88.0%

Highest "Internal RH" Result

93.0%

Concrete Slab Location

Slab-on-Grade

Under-Slab Vapor Retarder

None found 4" below slab

NOTES:

1. The tests for determining Relative Humidity in concrete floor slabs using in situ probes were performed in accordance with the test procedure outlined by ASTM F2170-19a
2. Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F2170-19a.5.3
3. Tests were performed using "Tramex CMEXII with Hydro-I" meter and in-situ probes
4. All In-situ probes are NIST* calibrated and traceable with a $\pm 2\%$ range of accuracy up to 90%. *National Institute of Standards and Technology
5. Moisture levels may vary with seasonal changes in temperature, humidity, rainfall amounts, and most importantly; availability to a free water source (i.e. slab design).



WWW.ACCURATECMT.COM

mb@accuratecmt.com

ASTM F1869-22

Data & Results of Concrete Moisture Vapor Emission Test

PROJECT: Vista Academy Kitchen
ADDRESS: 600 North Santa Fe Avenue
Vista, CA 92083

Job # _____
Testing Performed By: Michael Bivins
Test Kit Manufacturer: VaporScore

pH Test Meter: Extech #2304326

Test #	Location	Initial Wt. (grams)	Final Wt. (grams)	Start		End		Elapsed Time (hours)	(MVER) Results (lbs./1000sq.ft./day)	p.H. Test Result	Surface Absorbs Water	Surface Temp.	Ambient Air Temp.	Ambient Relative Humidity	Notes / Comments
				Day	Time	Day	Time								
1	see test plan	32.3	36.8	5/2/25	1:46 PM	5/5/25	6:28 AM	64.75	8.3	10.5	NO	66.3°	68°	60%	Resilient Tile, Near Exterior Wall
2	see test plan	32.6	42.8	5/2/25	1:49 PM	5/5/25	6:31 AM	64.75	18.8	8.9	NO	62.2°	68°	60%	Resilient Sheet Flooring
3	see test plan	32.4	37.4	5/2/25	1:54 PM	5/5/25	6:35 AM	65	9.2	11.2	NO	66.4°	68°	60%	Resilient Sheet Flooring
4	see test plan	32.4	36.1	5/2/25	1:58 PM	5/5/25	6:40 AM	64.75	6.8	8.7	NO	67.1°	68°	60%	Resilient Sheet Flooring

Summary: Tests < 3 lbs.

0

Tests 3 - 5 lbs.

0

Tests 5 - 8 lbs.

1

Tests > 8 lbs.

3

Slab Thickness

3 inches

Under-Slab Vapor Retarder

None found 4" below slab

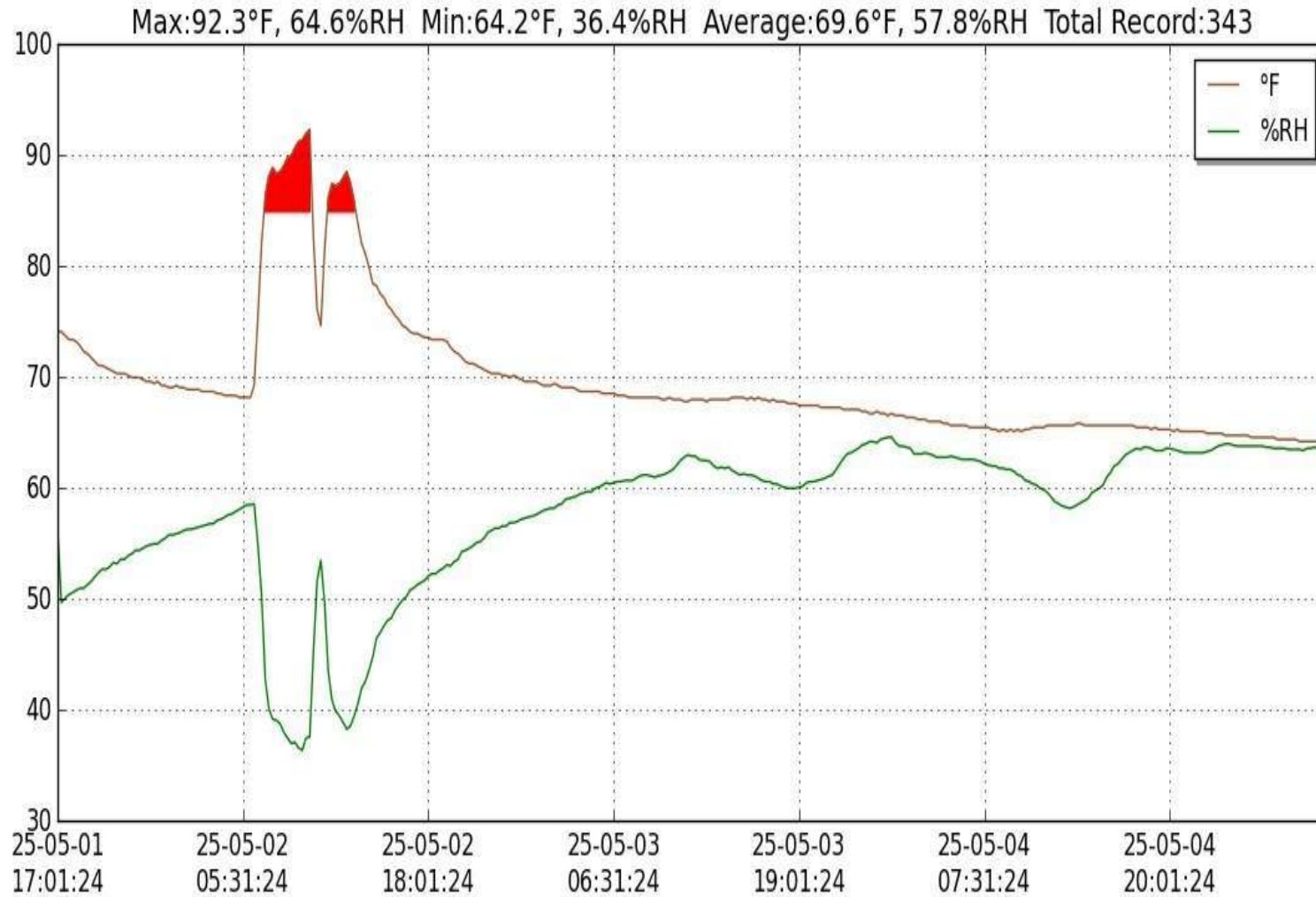
NOTES:

The moisture vapor emission tests were performed in accordance with the test procedure outlined by ASTM F-1869-22

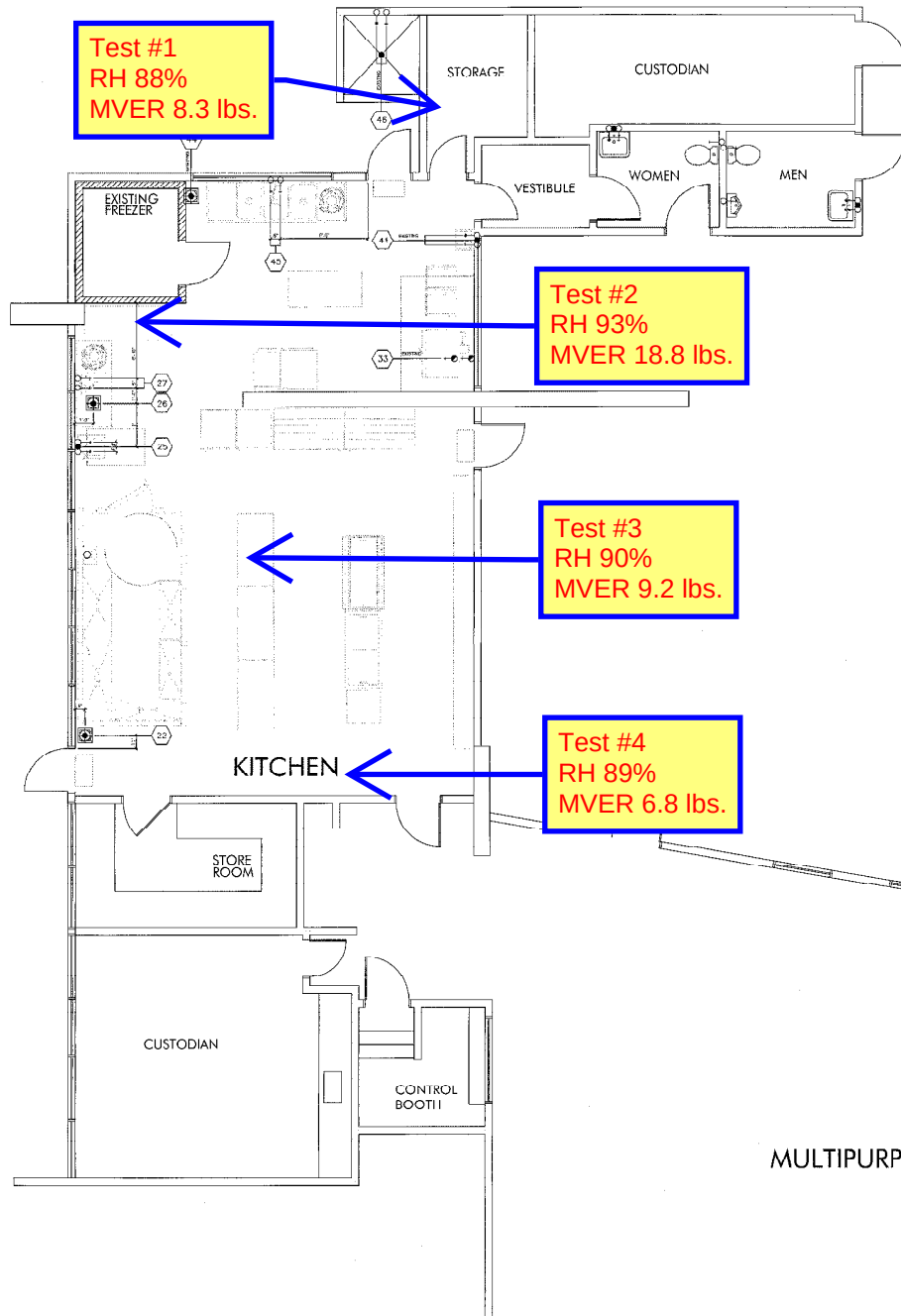
Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F1869-22.4.1

The test results provide a "snapshot" of the moisture vapor transmission. Emission rates will vary with seasonal changes in temperature, humidity, rainfall amounts, and availability to a free water source.

Ambient Air Conditions during Testing



Concrete Moisture Testing Locations



PLUMBING NOTES:

1. ALL PLUMBING SHALL BE IN ACCORDANCE WITH THE CITY OF SAN ANTONIO PLUMBING CODE AND THE CITY OF SAN ANTONIO PLUMBING CODE.
2. PLUMBING CONTRACTOR TO VERIFY ALL EXISTING SERVICE AND MAKE FINAL HOOK-UP TO ALL APPLICABLE EQUIPMENT AND TO PROVIDE ALL FINAL TESTS. PLUMBING CONTRACTOR TO PROVIDE ALL FINAL TESTS. UNLESS OTHERWISE SPECIFIED.
3. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL INDIVIDUAL SHUT-OFF VALVE ON ALL WATER, WASTE AND GAS LINES.
4. ALL FLOOR AND WALL PENETRATIONS MUST BE SEALED WATER-TIGHT AND VAPOR-TIGHT.
5. HORIZONTAL DIMENSIONS SHOWN ARE FROM FINISHED FACE OF WALL TO CENTER LINE OF STUB-OUT OR FROM CENTER LINE OF STUB-OUT TO CENTER LINE OF STUB. UNLESS NOTED OTHERWISE ON PLAN OR DETAIL, VERIFY ALL DIMENSIONS AT THE JOB SITE.
6. ALL SYMBOLS NOTED +12" +18" ETC. TO STUB-OUT OF WALL AT HEIGHT INDICATED. HEIGHT IS GIVEN FROM FINISHED FLOOR TO CENTER LINE OF STUB-OUT. ALL STUB-UP NOTED "STUB-OUT ARE TO STUB-UP ABOVE FINISHED FLOOR.
7. ALL FLOOR SINKS SPROWN ARE 1/4" TO 3/4" FLOOR WITH FINISHED FLOOR. HANGERS WITH LEGAL ME GWP.
8. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL REMOVABLE COVERS OR GRILLS FOR ALL FULLY OR PARTIALLY EXPOSED FLOOR SINKS.
9. PLUMBING CONTRACTOR TO PROVIDE DRAIN LINES FROM ALL APPLICABLE COMPONENTS INCLUDING SINKS, TUBS, SHOWERS, AND ANY REMOTE REFRIGERATION TO FLOOR SINK.
10. FLOOR SINK FROM DISH & GLASS WASHING MACHINE TO HAVE 2" DRAIN PIPE.
11. PLUMBING CONTRACTOR TO PROVIDE PRESSURE REGULATING VALVE FOR DISINTEGRITY. ALL 1/2" UP AND DOWN REQUIRED.
12. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL PRESSURE REGULATING VALVES WHERE APPLICABLE.
13. IT IS RECOMMENDED THAT ALL POTABLE WATER LINES HAVE FILTERED WATER FILTERS TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR AND/OR OWNER.
14. IT IS RECOMMENDED THAT THE INLET WATER FOR THE WATER HEATER BE SOFTENED. THIS TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR AND/OR OWNER.
15. WATER HEATER TO BE SIZED AND PROVIDED FOR ADEQUATE WATER CONSUMPTION BY PLUMBING CONTRACTOR. VERIFY LOCATION.
16. GAS PIPING TO BE BLACK STEEL PIPE WITH MALLEABLE SCREWED FROM FITTINGS.
17. EACH PIECE OF EQUIPMENT SHOULD HAVE ITS OWN GAS COCK AND UNION SHUT-OFF VALVE.
18. FLOOR MATERIAL TO SLOPE 1/4" PER FOOT TOWARD FLOOR DRAINS WHERE APPLICABLE.
19. ALL SOAP AND TOWEL DISPENSERS AND RESTROOM FIXTURES TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR.
20. WATER HEATER/BOILER WILL COMPLY WITH SEC. 1601(C)(1) P.C. 31 FOR THERMAL EXPANSION REQUIREMENTS.
21. ALL LAVATORY FAUCETS IN REST ROOMS SHALL BE THE SELF-CLOSING TYPE. PROVIDE VACUUM BREAKERS AT HOSE BIBS IF APPLICABLE. PROVIDE SELF-CLOSING PLUMBING TOILETS IF APPLICABLE.
22. PLUMBING TO PROVIDE ACCESSIBLE FLOW CONTROL ON THE GREASE TRAP. CFC SECTION 31.05.
23. PLUMBING TO PROVIDE ALL KITCHEN EQUIPMENT'S FINAL VENT, WATER AND WASTE LINES HOOK-UP PER PLANS AND SPECIFICATIONS.
24. WATER SUPPLY TO CONDENSATORS SHALL BE PROTECTED BY AN APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER. TO BE RETIRED BY AN AREA ACCESSIBLE FOR TESTING. RELIEF VALVE SHALL BE SUBJECT TO SINKER WITH A LEGAL AIR GAP.
25. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE PROPERLY INSTALLED. VENTING SHALL BE PERMITTED. ALL TUBS AND TUBS SHALL BE WATER-RESISTANT. A SOURCE OF CONTAMINATION, NOISE SHALL NOT BE ATTACHED TO A FAUCET OR HOSE BIB UNLESS AN APPROVED BACKFLOW PREVENTER IS PROVIDED.

WATER HEATER CALCULATIONS

PER HEALTH DEPARTMENT

1. MOP SINK	- 15 GPH
1. 3-COMP. POT SINK	- 42 GPH
2. HAND SINK	- 10 GPH
1. FOOD PREP. SINK	- 5 GPH
2. LAVATORY SINK	- 10 GPH
TOTAL	- 82 GPH

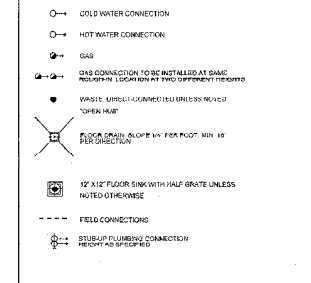
$$82 \times 60 \times 8.33 = 54,645 \text{ BTU}$$

$$75 = 54,645 \text{ BTU}$$

WATER HEATER SPECIFICATION

MANUFACTURE: A.O. SMITH OR EQUAL
MODEL: BT-65 OR EQUAL
TANK SIZE: 65 GAL
BTU/H: 65,000
RECOVERY: 100 GPH @ 60° RISE

PLUMBING LEGEND:



REVISIONS

COOLER AT VAPA
VISTA ACADEMY OF PERFORMING ARTS
600 N. SANTA FE AVE., VISTA, CA 92083
VISTA UNITED SCHOOL DISTRICT
1234 ARCADIA AVE., VISTA, CA 92084



ALPHA STUDIO
Design Group
6152 Innovation Way
Carlsbad, CA
92009
P: 760 431-2444
F: 760 431-2440

www.alpha-studio-design.com



@PLTDATE

APPROVALS

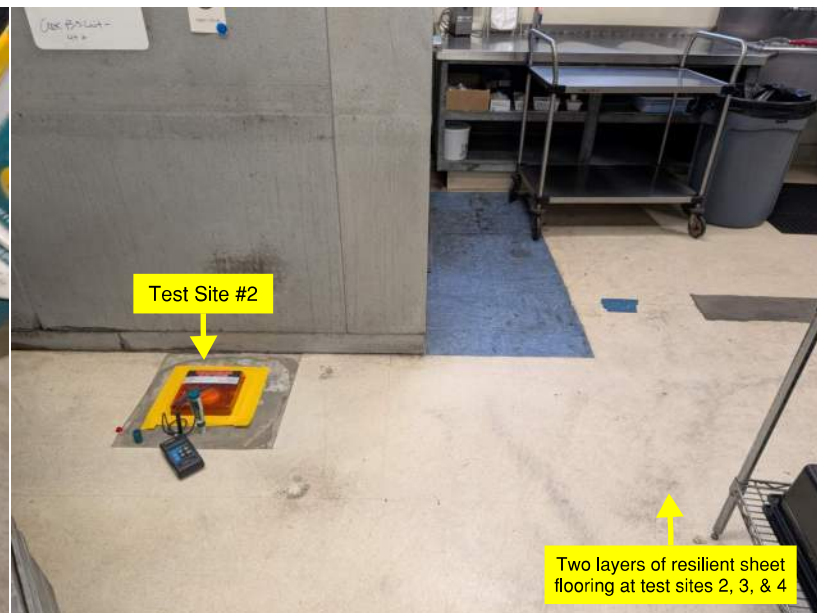
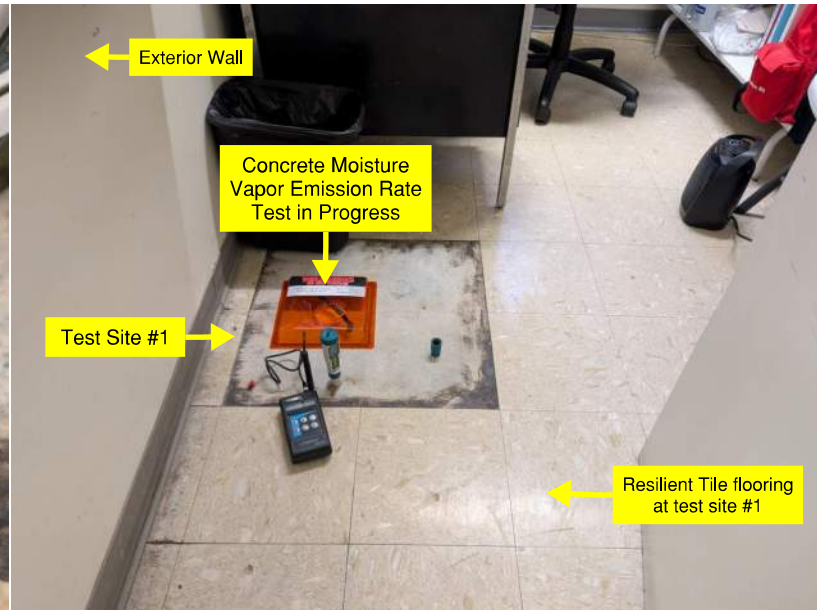
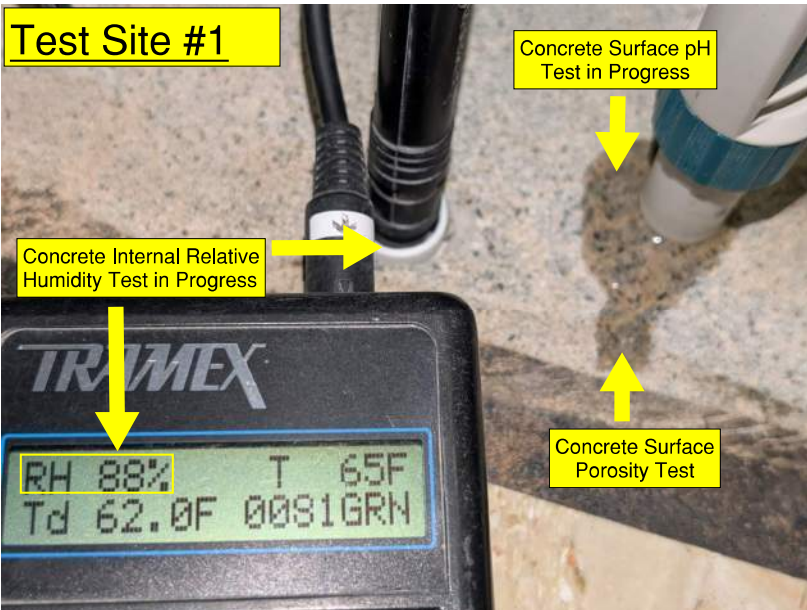
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04
AC: RLS SS
DATE:

FS EQUIPMENT PLUMBING
ROUGH-IN PLAN
VISTA ACADEMY OF
PERFORMING ARTS

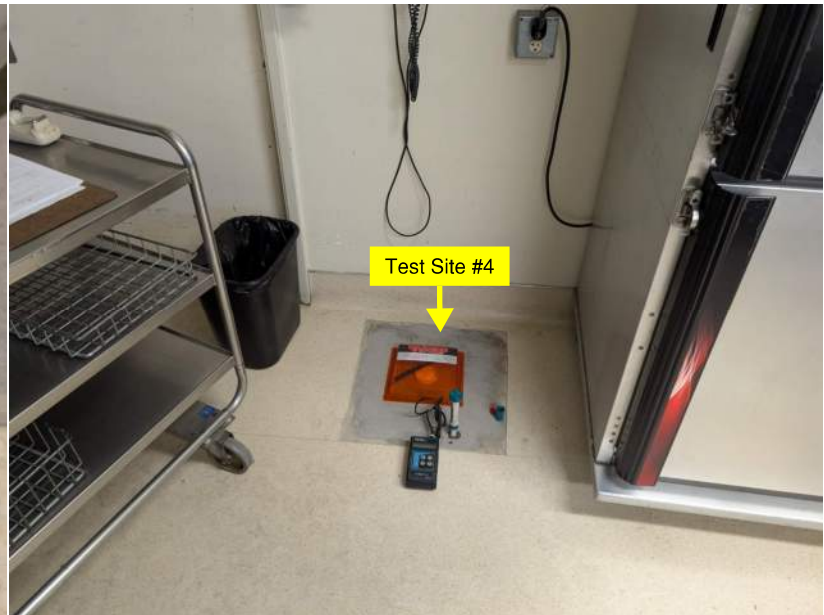
FS-4.0

PLT Date: @RTDATELONG

ASEG JOB NUMBER: 13-034



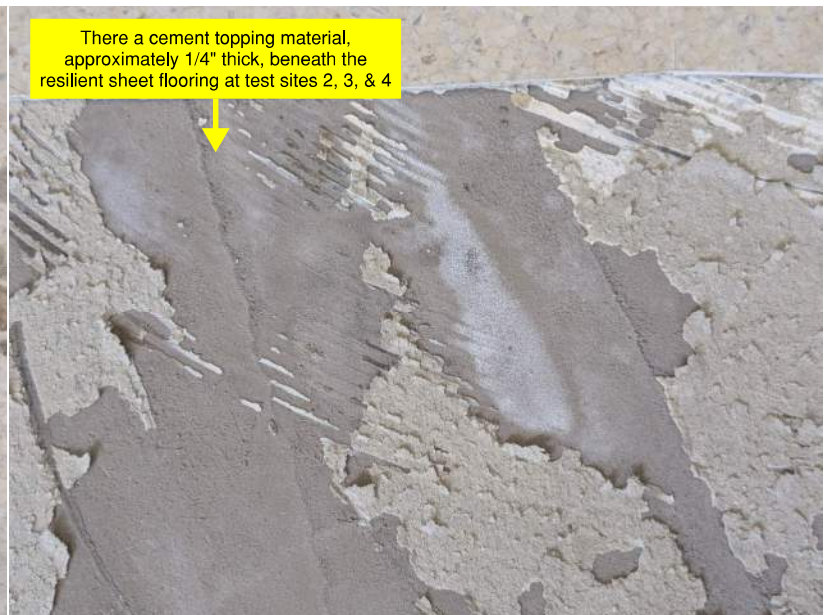
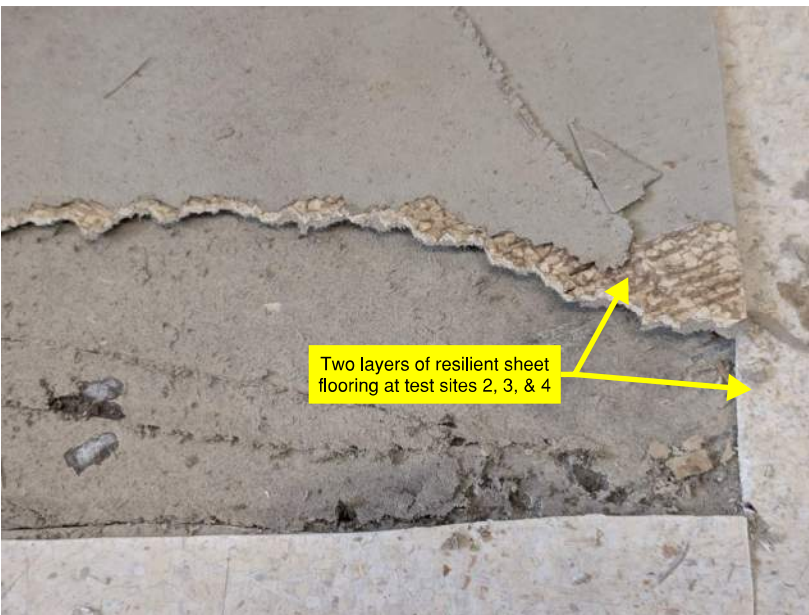
Test Site #4



Concrete Slab thickness verification



Total depth inspected for an under-slab vapor retarder



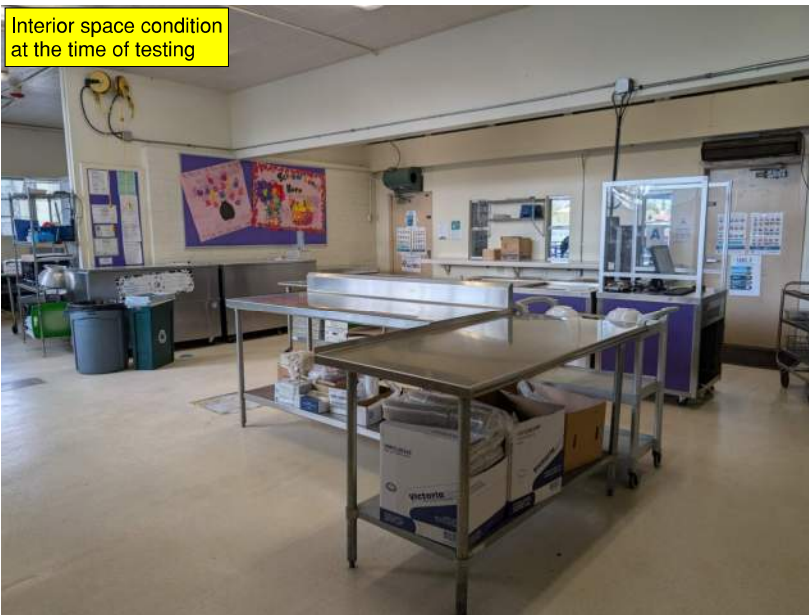
Interior space condition
at the time of testing



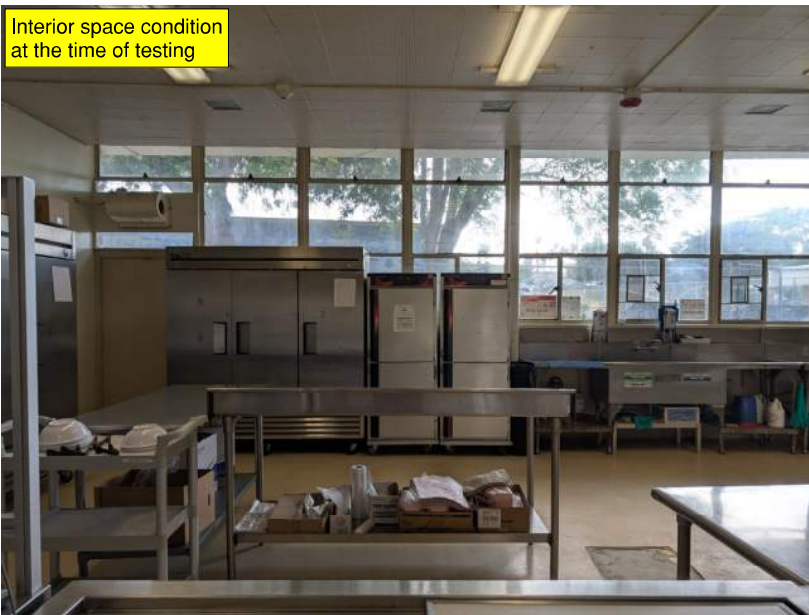
Interior space condition
at the time of testing



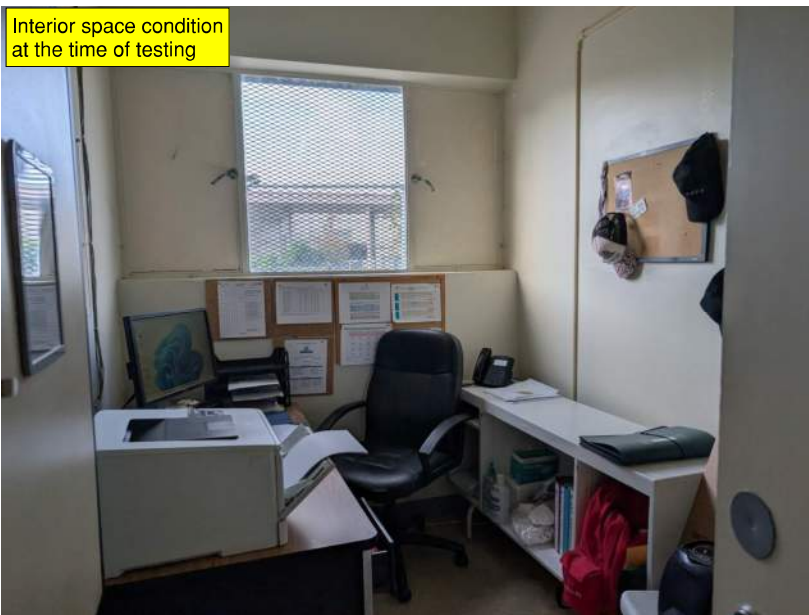
Interior space condition
at the time of testing



Interior space condition
at the time of testing



Interior space condition
at the time of testing



Interior space condition
at the time of testing



North-West corner
of the building



West side of
the building



South-West corner
of the building



South-West corner
of the building



South side of
the building



East side of
the building



Certificate of Certification

presented to

Michael Bivins

*for the successful completion of the ICRI Certification
requirements and is hereby recognized as an*

ICRI Concrete Slab Moisture Testing Technician - Grade 1

Date Certified: 1/25/2024
Valid Through: 1/25/2029



A handwritten signature in black ink that reads "Dale A. Regnier". The signature is written in a cursive style with a horizontal line underneath it.

Dale A. Regnier
Program Director



April 8th, 2025

Project: **VUSD Central Kitchen**

To Whom It May Concern:

Thank you for allowing Accurate Concrete Moisture Testing to perform the concrete slab moisture testing for the VUSD Central Kitchen project located at 4860 North Avenue, Oceanside, CA 92056. Concrete moisture and surface pH readings were taken at ten various locations on the ground floor level. The concrete moisture was measured by two different methods; internal relative humidity and moisture vapor emission rate. The internal relative humidity (RH) was determined by using the in-situ probe testing method, performed in accordance with the procedure set forth by the American Society of Testing and Materials (ASTM) F2170-19a and the testing equipment manufacturer's instructions. The concrete moisture vapor emission rate (MVER) was determined by using the anhydrous calcium chloride testing method, performed in accordance with the procedure set forth by the American Society of Testing and Materials (ASTM) F1869-23. You will find the results of the concrete Internal Relative Humidity (RH), Moisture Vapor Emission Rate (MVER), along with the concrete surface pH level and concrete surface porosity condition, test locations, and other useful information on the attached pages.

The concrete internal Relative Humidity (RH) is located in the column with the bold border, labeled "Relative Humidity in Concrete". This reading is displayed as the percentage of relative humidity. Relative Humidity is the ratio of the amount of water vapor actually in the air compared to the amount of water vapor required for saturation at that particular temperature and pressure, expressed as a percentage. This test was performed using the "CMEXPERT II" system with the Hydro-I® in situ probes, manufacturer by Tramex®. The in-situ probes are NIST (National Institute of Standards and Technology) traceable and the calibration is checked per the requirements of ASTM F2170-19a. The individual in-situ probe serial #'s are shown on the attached form with the test site readings.

The concrete moisture vapor emission rate (MVER) is located in the column with the bold border, labeled "(MVER) Results". This reading is the quantity of moisture, expressed as the rate of moisture vapor emission, measured in pounds of moisture over a 1000 square foot area during a 24-hour period. These tests were performed using new test kits manufactured by VaporScore, Inc. The test kits were weighed within 24 hours prior to placement and within 12 hours after completion of testing. The calibration of the scale was checked using a 20g weight immediately prior to the pre-weight and post-weight recordings.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



The concrete surface pH levels are also recorded on the attached report. The pH is a measure of the concentration of acid ions in a solution. A reading of 7 is considered neutral. The surface of cured concrete should have an approximate surface pH of 9 and new concrete will typically have a surface pH of 12 to 13. This is mostly due to calcium hydroxide, which is a normal by-product of cement hydration. As a concrete surface reacts with carbon dioxide in the air, the pH of the surface is gradually reduced through a process called carbonation. Therefore, if the concrete has not had proper time or air exposure, it may have high surface pH readings. If the surface of the concrete has been removed by bead-blasting, grinding, or other means, the surface may have high surface pH readings. Additionally, if the concrete has access to a continuing water source, such as direct contact to moist earth below, dissolved alkalis and hydroxides can be carried to the surface resulting in a high pH level. This test was performed using an electronic "Concrete pH Meter" serial #2412974, model "pH 100", manufactured by Extech. The meter is calibrated weekly.

The substrate water absorption verification "surface porosity" was also recorded at each test site. This test determines whether or not a substrate surface readily absorbs water. These test results are recorded as a YES (absorbs water in 1 minute) or NO (did not absorb water in 1 minute). A result of "NO" does not mean the surface is non-porous, it confirms the substrate surface did not readily absorb water in the tested time frame of 1 minute. A few reasons a substrate surface may be considered non-porous per this test are existing floor coverings, contaminants, coatings, sealers, curing compounds, and densely machine-troweled concrete, and mature or well-hydrated concrete. This test was performed using the method "single drop method" outlined per ASTM F3191-23 "Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring", with a light, hand-sanding of the surface tested. This method may differ from the requirement of the material being applied to the surface. This test should be conducted by the flooring installer, after the completion of the substrate preparation, prior to the installation of each material, using the product manufacturer's recommended method or the single-drop in 1 minute method, as described above, when the material manufacture does not specify the procedure.

Please check these internal relative humidity (RH), concrete moisture vapor emission rate (MVER), and surface (pH) readings with the floor covering or coating manufacturer and floor covering adhesive and/or installation system guidelines and instructions before proceeding with the installation of any floor covering or floor coating. Different flooring manufacturers, flooring products, and installation systems vary in the allowable percentage of relative humidity, amount of moisture vapor emission rate, and level of the surface pH.

The conditioning of the space to be tested is an important requirement to comply with the ASTM F2170-19a and ASTM F1869-23 requirements. The concrete slab and the occupied air space above the floor slab are required to be at the temperature and humidity expected during service condition (expected use of the space) during the testing process prior to recording the measurements.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



Findings:

1. The structure tested is a 2-story, commercial use building.
2. We were unable to confirm the age of the building; however, it's believed to have been constructed in the late 1970's or early 1980's.
3. The building exterior is cast concrete construction with glazing on the south side and roll-up warehouse doors and truck loading docks along the north side. The glazing is mounted directly on the concrete slab at the ground floor level.
4. The exterior perimeter of the building is irrigated landscaping in planter-beds followed by pavement to the south and south half of the west side, and pavement only to other sides.
5. The topography of the building is a hill which slopes up toward the south and east and down toward the north and west.
6. There is a concrete drainage channel along the bottom of the hill on the east side of the building and site drains around the perimeter of the building.
7. The space tested is located in the south-east corner of the building, on the ground floor level. There is interior building space to the north and west, and exterior space to the south and east.
8. Test sites#1 was conducted near an exterior wall.
9. The space tested was occupied and in-use at the time of testing.
10. The space tested does have a functioning HVAC system. That system was operating under normal conditions prior to and throughout the duration of testing. See items 6 through 9 in the "Summary of Data Collected" section below.
11. The concrete slab tested is a slab-on-grade construction.
12. There is existing carpet tile flooring at test sites 1, 2, & 4, resilient tile flooring at test site #3, and a resinous coating at test sites 5 through 9, on the surface of the concrete slab. All these floor coverings have a low permeate rating (the rate at which moisture can pass through) and limits the rate which concrete moisture and/or subgrade moisture from passing through.
13. There is existing broadloom carpet flooring, installed by direct glue-down method, at test site #10. Broadloom carpet flooring has a high permeate rating (the rate at which moisture can pass through) and allows concrete moisture and subgrade moisture to pass through it with little resistance. If the surface of the concrete slab is covered with a floor covering with a lower permeate rating, such as a resilient flooring, and the under-slab vapor retarder is absent or not functioning properly, the concrete moisture levels may rise from the recorded readings.
14. At test sites 2 through 4, the flooring adhesive residue at both the carpet tile and resilient tile, was in a re-emulsified condition in several locations. This is typically caused by extended exposure to elevated moisture conditions.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



Findings continued:

15. The existing resilient tiles are showing visible signs of distress typically associated with elevated concrete moisture conditions, such as lifting, cracking, and bond failure at the joints of the tiles. This is often caused by the concrete and/or subgrade moisture and/or mineral migration to the surface of the concrete slab where it builds up and moves toward the joints.
16. There is a material, dark in color, at the joint lines of the existing VCT tile. This is believed to be flooring adhesive which has emulsified due to extended exposure to high concrete moisture conditions and then moves toward the joints of the flooring. The dark color is caused by dirt and other surface contaminants sticking to the adhesive.
17. Due to the presence of the existing floor covering, we were not able to confirm the presence of any concrete slab in-fills. Slab in-fills are sections of the concrete slab which have been removed and replaced, usually for utilities, and are not part of the original concrete slab and may have different levels of concrete moisture than the original concrete slab.

Summary of Data Collected:

1. The **Concrete Internal Relative Humidity (RH)** ranged from (**76%**) to (**93%**).
2. The **Concrete Moisture Vapor Emission Rate (MVER)** ranged from (**2.2 lbs.**) to (**9.3 lbs.**).
3. The **Concrete Surface pH** test results ranged from (**9.0**) to (**11.1**).
4. The **Concrete Surface Porosity** test results were a **NO** at all test site locations. The surface of the concrete slab did not absorb water using the procedure outlined per ASTM F3191-23a & ASTM F710-22.
5. The concrete slab thickness is 5 inches and was confirmed by a visual inspection of a penetration made during previous testing in the building.
An inspection 2.5 inches below the concrete slab was performed at the penetration made during previous testing in the building. The presence, quality, and location of an under-slab vapor retarder were confirmed to be present, consisting of a clear plastic sheet "visqueen" type material, and located 2.5 inches beneath the concrete slab with a sand/soil fill layer retarder, any locations where the vapor retarder may become compromised, available ground moisture can enter the fill layer between the vapor retarder and the concrete slab and travel laterally beneath the concrete and potentially migrate through the concrete to the surface in random locations. We are not able to confirm the overall condition of the under-slab vapor retarder.

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



Summary of Data Collected continued:

6. The building ambient air temperature/condition did meet the requirements of ASTM F2170-19a and ASTM F1869-23. See items 8 & 9 below.
7. A "THC-4 Data Logger" manufactured by Inkbird (unit #ACMT-44) was placed near test site #10 to track the building ambient air conditions. Readings were taken throughout the testing process and those results are attached and noted below.
8. The ambient air temperature readings ranged from 64° to 70°, with an average of 67°. These readings were recorded during occupied use of the space.
9. The ambient air relative humidity readings ranged from 54% to 62%, with an average of 59%. These readings were recorded during occupied use of the space.
10. The quantity of tests performed was determined by Accurate Concrete Moisture Testing to meet the quantity requirements of ASTM F1869-23 and ASTM F2170-19, for the size of the areas tested.

NOTE:

The concrete slab moisture or surface pH is not measured at joints or cracks in the slab. These locations may be subject to movement and/or separation. At slabs on ground, we recommend that a quality, moisture impervious crack sealant should always be used at these locations prior to the installation of floor coverings or coatings.

Thank you for the opportunity to provide the concrete slab moisture testing for this project. Please let me know if you have any questions or if I may be of further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael Bivins", with a stylized flourish at the end.

Michael Bivins
Certified Testing Technician

ACCURATECMT.COM

mb@accuratecmt.com (619)654-0593

P.O. Box 712474, Santee, CA 92071



WWW.ACCURATECMT.COM

mb@accuratecmt.com

ASTM F1869-22

Data & Results of Concrete Moisture Vapor Emission Test

PROJECT: **VUSD Central Kitchen**

ADDRESS: 4680 North Avenue

Oceanside, CA 92056

Job # _____

Testing Performed By: Michael Bivins

Test Kit Manufacturer: VaporScore

pH Test Meter: Extech #2412974

Test #	Location	Initial Wt. (grams)	Final Wt. (grams)	Start		End		Elapsed Time (hours)	(MVER) Results (lbs./1000sq.ft./day)	p.H. Test Result	Surface Absorbs Water	Surface Temp.	Ambient Air Temp.	Ambient Relative Humidity	Notes / Comments
				Day	Time	Day	Time								
1	see test plan	32.3	36.1	5/2/25	1:12 PM	5/5/25	7:43 AM	66.5	6.8	9.5	NO	67.5°	65°	62%	Carpet Tile, Near Exterior Wall
2	see test plan	32.6	35.8	5/2/25	1:14 PM	5/5/25	7:47 AM	66.5	5.8	10.4	NO	68.1°	65°	62%	Carpet Tile Flooring
3	see test plan	32.4	37.2	5/2/25	1:16 PM	5/5/25	7:52 AM	66.5	8.6	10.2	NO	70.4°	65°	62%	Resilient Tile Flooring
4	see test plan	32.4	37.5	5/2/25	1:18 PM	5/5/25	7:57 AM	66.75	9.1	10.4	NO	69.3°	65°	62%	Carpet Tile Flooring
5	see test plan	32.4	37.5	5/2/25	1:20 PM	5/5/25	8:02 AM	66.75	9.1	10.8	NO	65.4°	65°	62%	Resinous Coating
6	see test plan	32.3	36.0	5/2/25	1:22 PM	5/5/25	8:06 AM	66.75	6.6	10.5	NO	64.8°	65°	62%	Resinous Coating
7	see test plan	32.3	37.5	5/2/25	1:24 PM	5/5/25	8:09 AM	66.75	9.3	10.3	NO	64.9°	65°	62%	Resinous Coating
8	see test plan	32.5	34.6	5/2/25	1:26 PM	5/5/25	8:14 AM	66.75	3.8	11.1	NO	60.6°	65°	62%	Resinous Coating
9	see test plan	32.3	35.9	5/2/25	1:29 PM	5/5/25	8:17 AM	66.75	6.5	9.8	NO	61.7°	65°	62%	Resinous Coating
10	see test plan	32.4	33.6	5/2/25	1:31 PM	5/5/25	8:23 AM	67	2.2	9	NO	67.2°	65°	62%	Broadloom Carpet

Summary: Tests < 3 lbs.

1

Tests 3 - 5 lbs.

1

Tests 5 - 8 lbs.

4

Tests > 8 lbs.

4

Slab Thickness

5 inches

Under-Slab Vapor Retarder

YES, 6-mil clear under 2.5" fill

NOTES:

The moisture vapor emission tests were performed in accordance with the test procedure outlined by ASTM F-1869-22

Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F1869-22.4.1

The test results provide a "snapshot" of the moisture vapor transmission. Emission rates will vary with seasonal changes in temperature, humidity, rainfall amounts, and availability to a free water source.



www.AccurateCMT.com

mb@accuratecmt.com

ASTM F2170-19a Data & Results of Relative Humidity in Concrete Testing

PROJECT: VUSD Central Kitchen
ADDRESS: 4680 North Avenue
Oceanside, CA 92056

Testing Performed By: Michael Bivins
RH Reader & Serial #: Tramex # 12156222
pH Reader & Serial #: Extech # 2412974

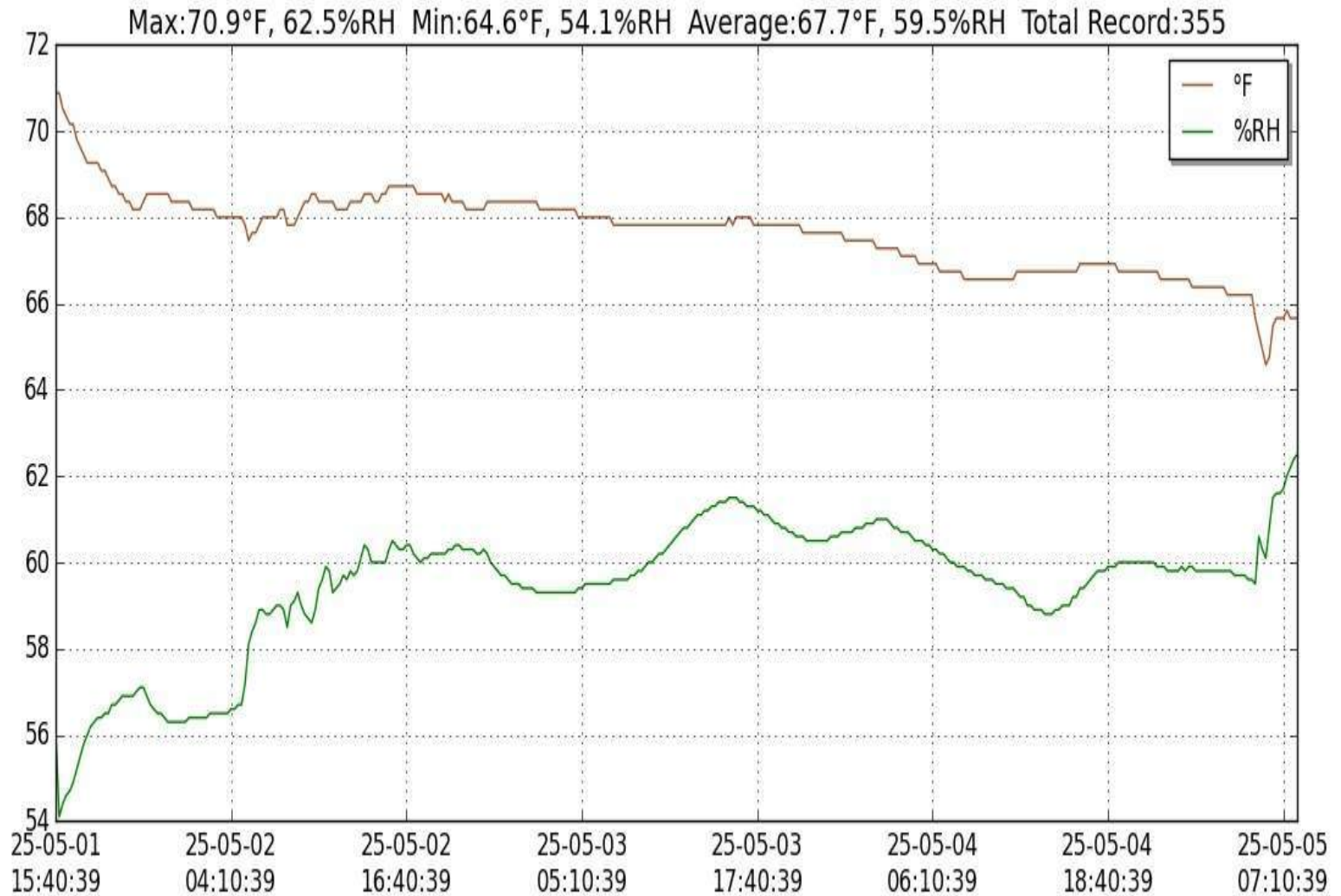
Test #	Location	"RH" in Concrete	Dew Point	Temp in Concrete	Surface Temp.	Probe Depth	Probe Serial Number	Test Date	Test Time	p.h. Test Result	Surface Absorbs Water	Ambient Air Temp	Ambient Air "RH"	Comments / Notes
1	see attached floor plan	80%	64.0°	67°	67.5°	2.0"	DE00190	5/5/2025	7:41 AM	9.5	NO	65°	62%	Carpet Tile, Near Exterior Wall
2	see attached floor plan	92%	65.4°	68°	68.1°	2.0"	DE00191	5/5/2025	7:45 AM	10.4	NO	65°	62%	Carpet Tile Flooring
3	see attached floor plan	93%	67.4°	69°	70.4°	2.0"	DE00189	5/5/2025	7:50 AM	10.2	NO	65°	62%	Resilient Tile flooring
4	see attached floor plan	93%	66.7°	69°	69.3°	2.0"	DE00193	5/5/2025	7:55 AM	10.4	NO	65°	62%	Carpet Tile Flooring
5	see attached floor plan	92%	62.9°	65°	65.4°	2.0"	DE00208	5/5/2025	8:00 AM	10.8	NO	65°	62%	Resinous Coating
6	see attached floor plan	92%	61.8°	64°	64.8°	2.0"	DE00192	5/5/2025	8:04 AM	10.5	NO	65°	62%	Resinous Coating
7	see attached floor plan	92%	60.8°	63°	64.9°	2.0"	DE00201	5/5/2025	8:08 AM	10.3	NO	65°	62%	Resinous Coating
8	see attached floor plan	89%	55.7°	59°	60.6°	2.0"	DE00204	5/5/2025	8:12 AM	11.1	NO	65°	62%	Resinous Coating
9	see attached floor plan	91%	58.6°	61°	61.7°	2.0"	DE00205	5/5/2025	8:16 AM	9.8	NO	65°	62%	Resinous Coating
10	see attached floor plan	76%	56.8°	67°	67.2°	2.0"	DE00196	5/5/2025	8:20 AM	9	NO	65°	62%	Broadloom Carpet

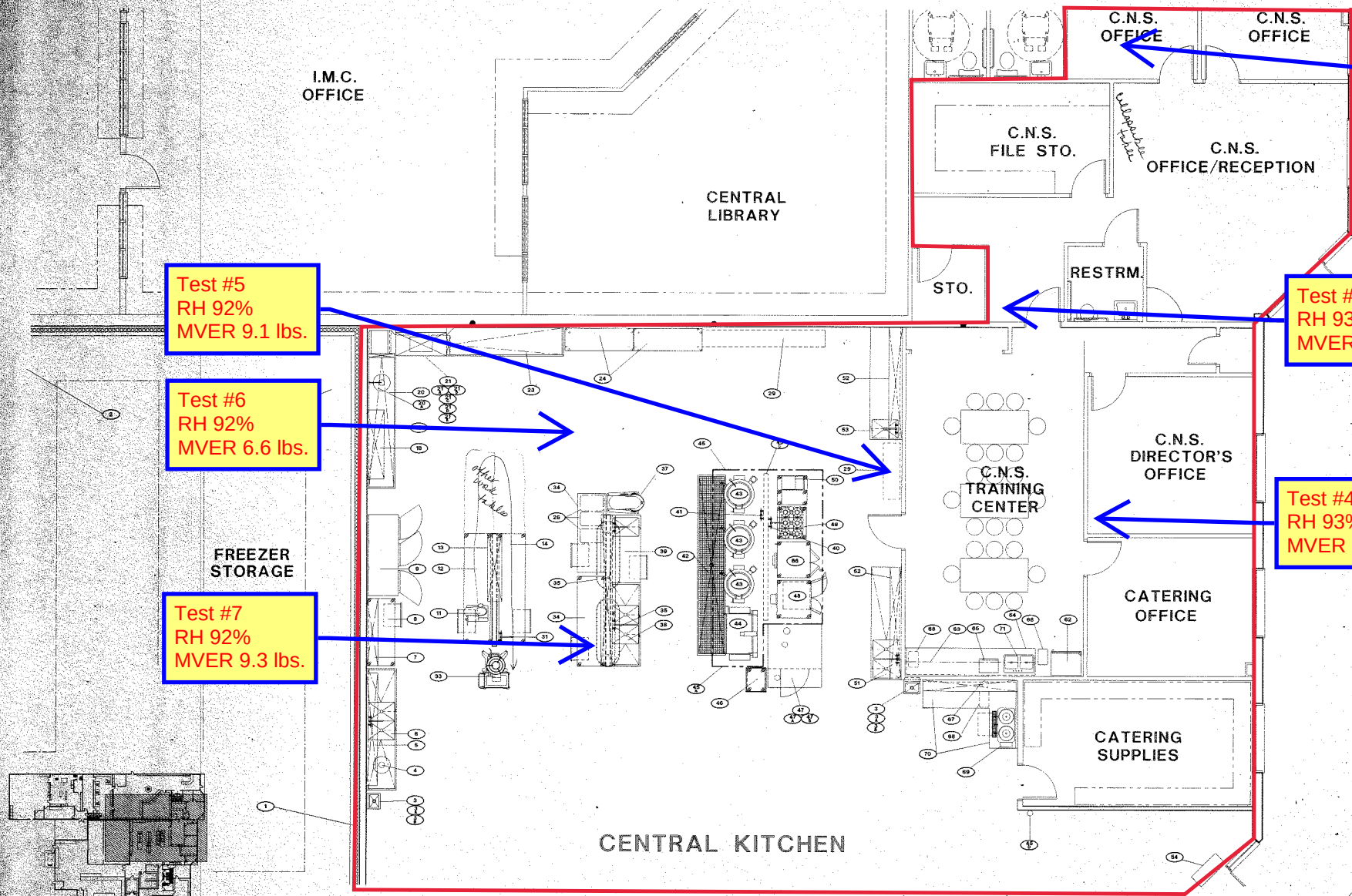
Summary:	Concrete Thickness	Lowest "Internal RH" Result	Highest "Internal RH" Result	Concrete Slab Location	Under-Slab Vapor Retarder
	5 inches	76.0%	93.0%	Slab-on-Grade	YES, 6-mil clear under 2.5" sand fill

NOTES:

- The tests for determining Relative Humidity in concrete floor slabs using in situ probes were performed in accordance with the test procedure outlined by ASTM F2170-19a
- Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F2170-19a.5.3
- Tests were performed using "Tramex CMEXII with Hydro-I" meter and in-situ probes
- All In-situ probes are NIST* calibrated and traceable with a $\pm 2\%$ range of accuracy up to 90%. *National Institute of Standards and Technology
- Moisture levels may vary with seasonal changes in temperature, humidity, rainfall amounts, and most importantly; availability to a free water source (i.e. slab design).

Ambient Air Conditions during Testing





Test #5
RH 92%
MVER 9.1 lbs.

Test #6
RH 92%
MVER 6.6 lbs.

Test #7
RH 92%
MVER 9.3 lbs.

Test #1
RH 80%
MVER 6.8 lbs.

Test #2
RH 92%
MVER 5.8 lbs.

Test #3
RH 93%
MVER 8.6 lbs.

Test #4
RH 93%
MVER 9.1 lbs.

REVISIONS

MICHAEL J. MACOLLEY ASSOCIATES
836 East "J" Street
Chico, CA 95926
(530) 421-3141 Fax: (530) 421-4408



CENTRAL KITCHEN FACILITY
VISTA UNIFIED SCHOOL DISTRICT
VISTA, CALIFORNIA

DATE 3/30/98
BY M.L.M.
SCALE 1/4" = 1' - 0"
JOB NO. 9503

SHEET NO.

K-2



FOOD SERVICE EQUIPMENT PLAN
scale 1/4" = 1' - 0"

ALL FOOD SERVICE EQUIPMENT, FURNISHINGS, & FIXTURES SHALL BE CONSTRUCTED TO N.S.F. STANDARDS, U.L. LISTED, & A.G.A. APPROVED

COPYRIGHT © 1996 BY MICHAEL L. MCCOLLEY ASSOCIATES

REVISIONS

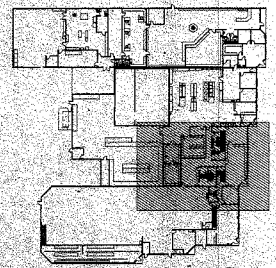
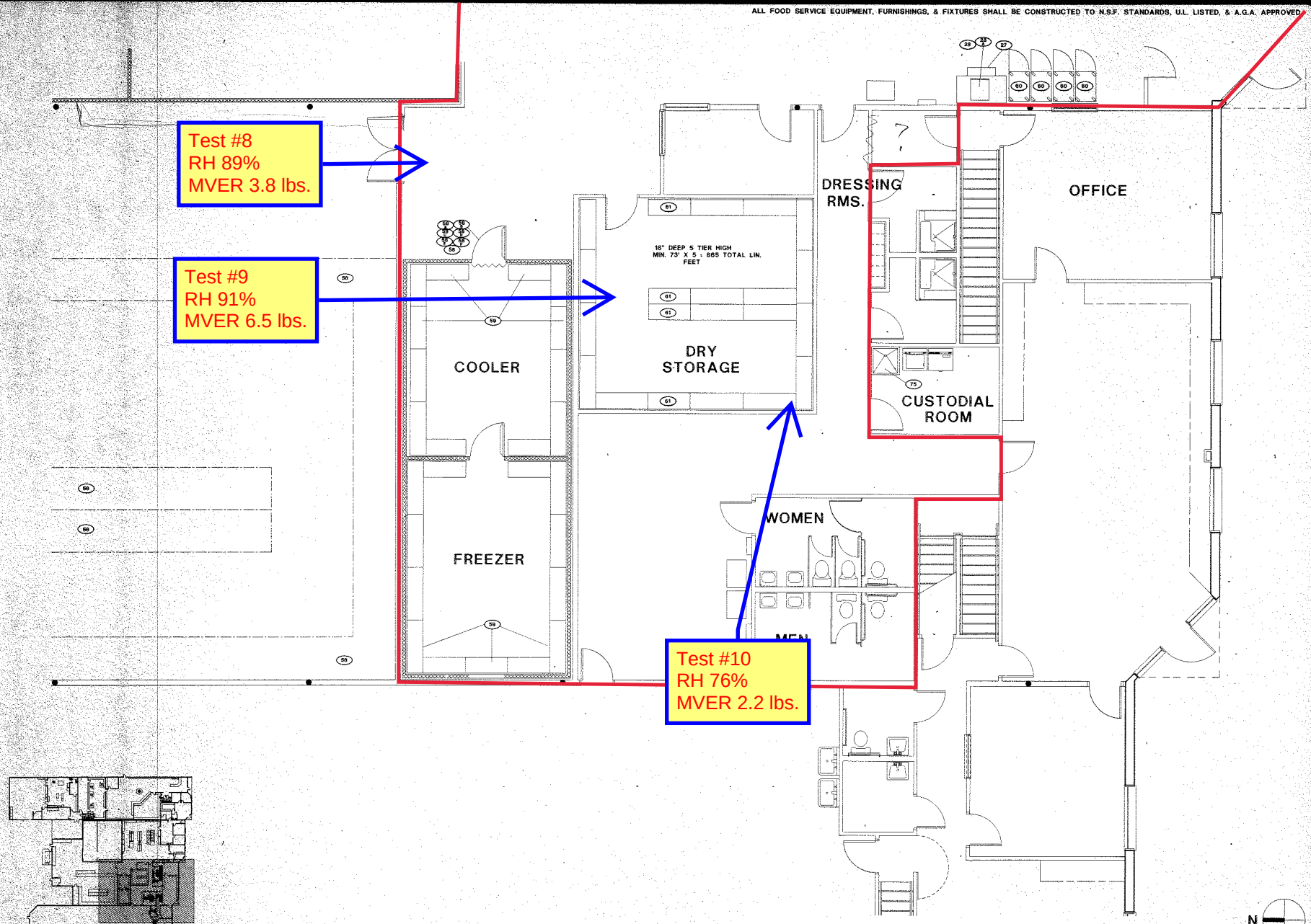
MICHAEL L. MCCOLLEY ASSOCIATES
635 East "J" Street
Chico, CA 95926
(916) 423-3141 Fax (916) 423-4405



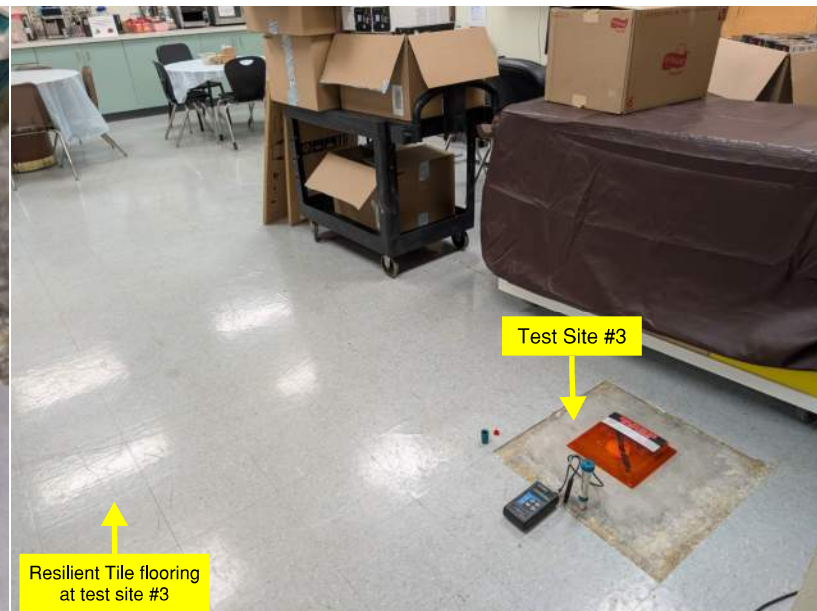
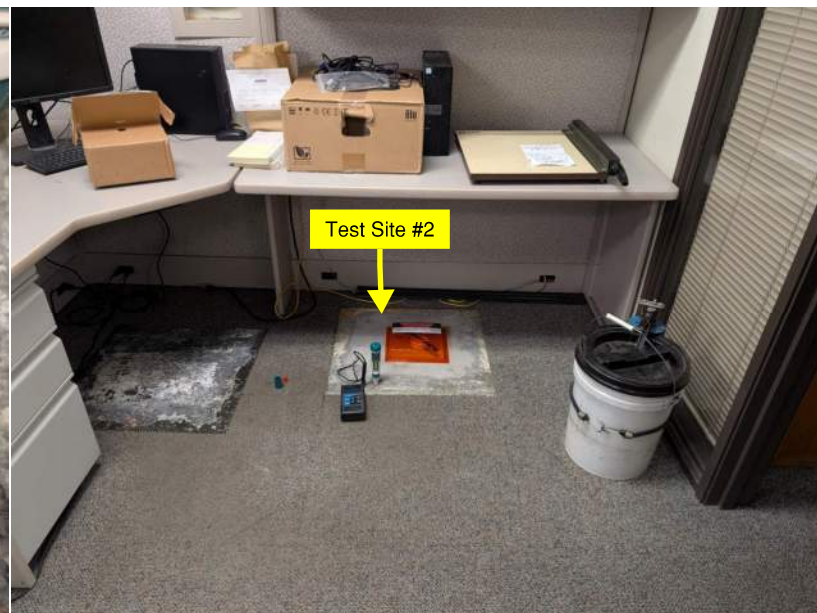
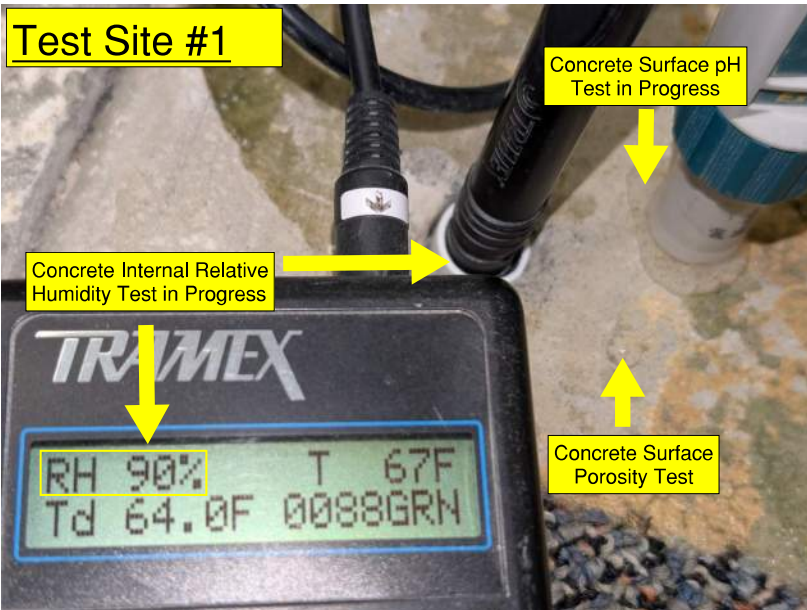
CENTRAL KITCHEN FACILITY
VISTA UNIFIED SCHOOL DISTRICT
VISTA, CALIFORNIA

DATE 3/30/96
BY M.L.M.
SCALE 1/4" = 1'-0"
JOB NO. 9503

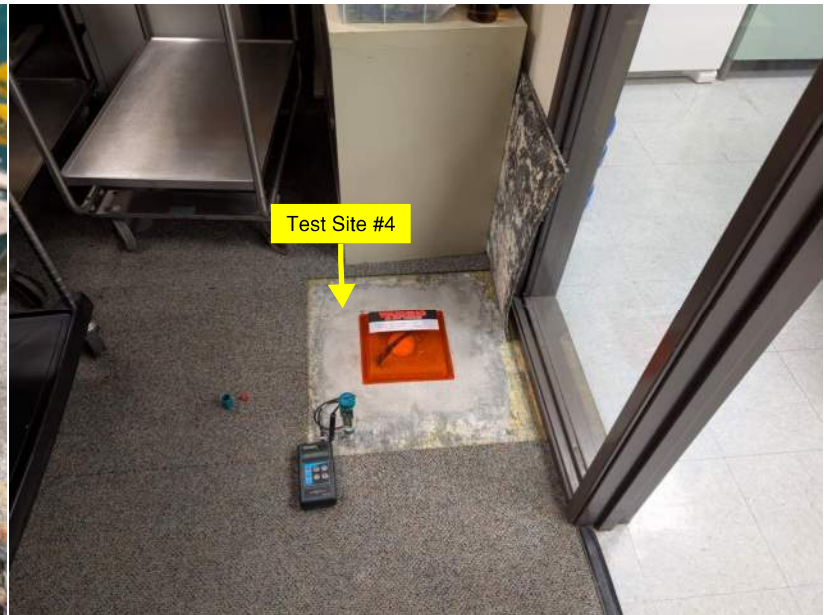
SHEET NO.
K-4



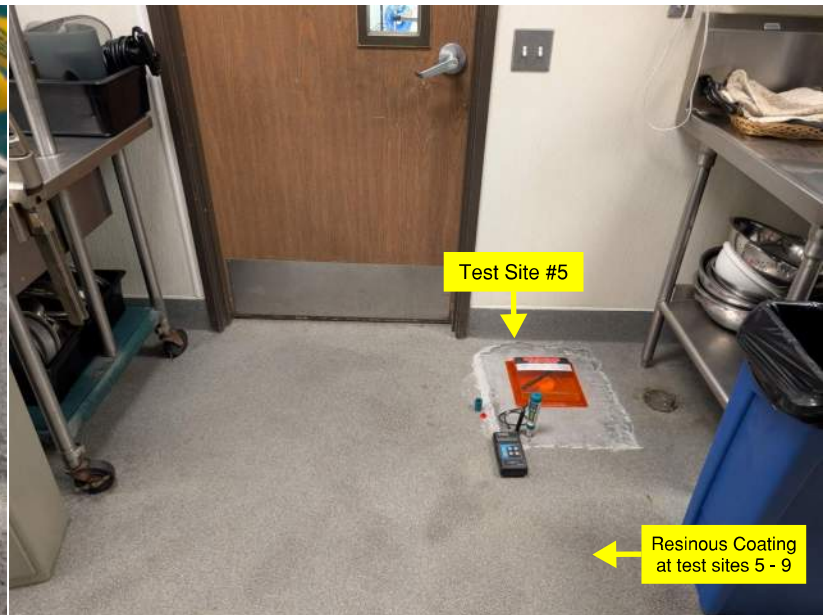
FOOD SERVICE EQUIPMENT PLAN
scale 1/4" = 1' - 0"



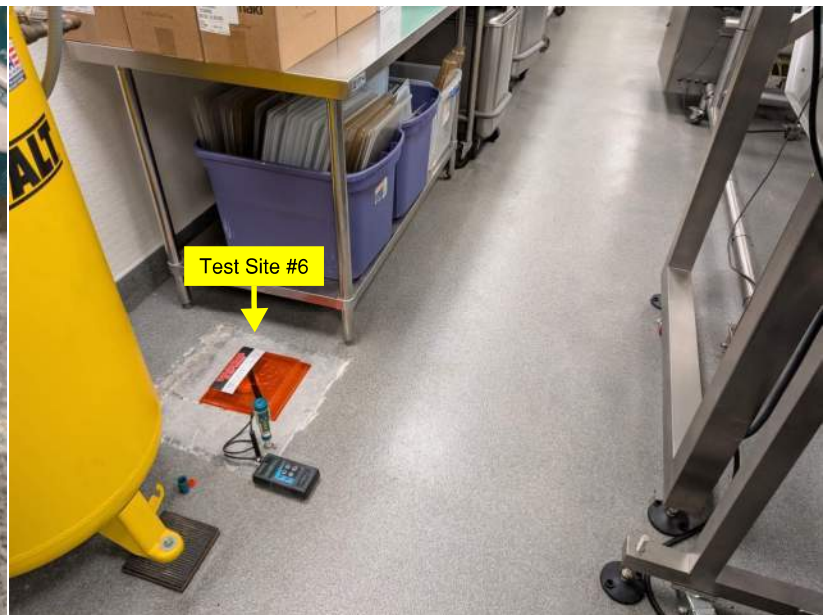
Test Site #4



Test Site #5



Test Site #6



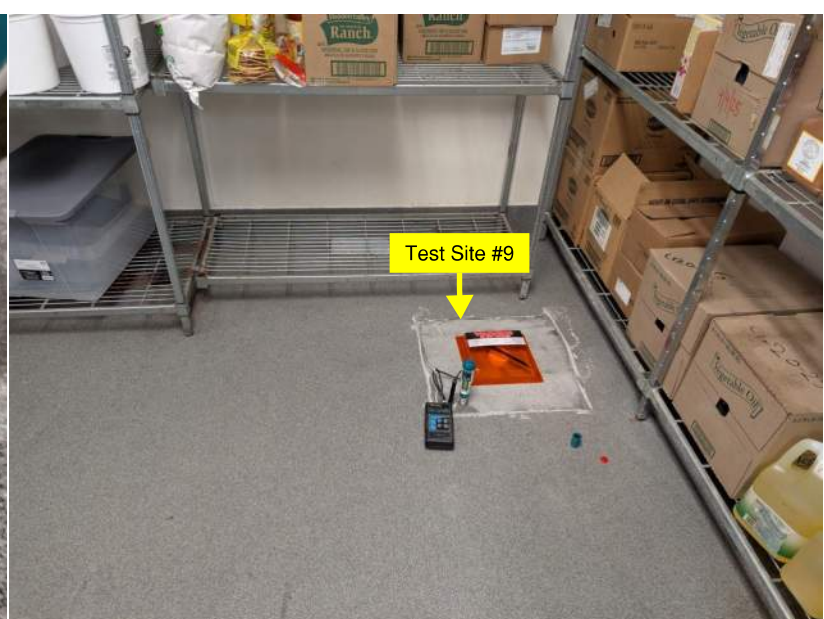
Test Site #7

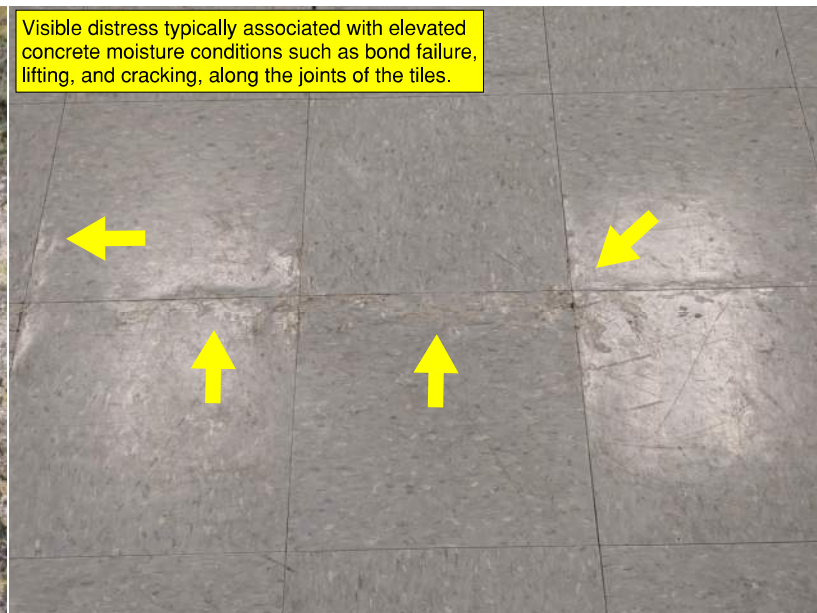
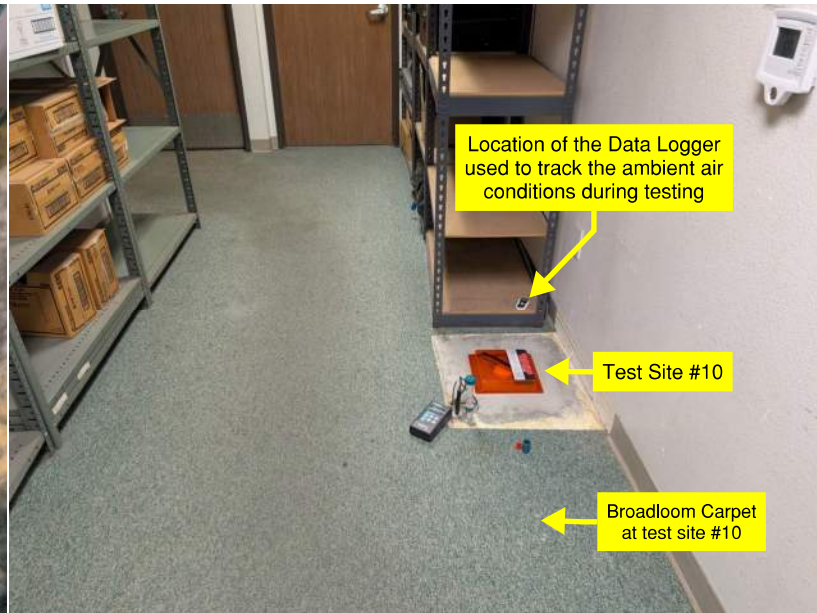


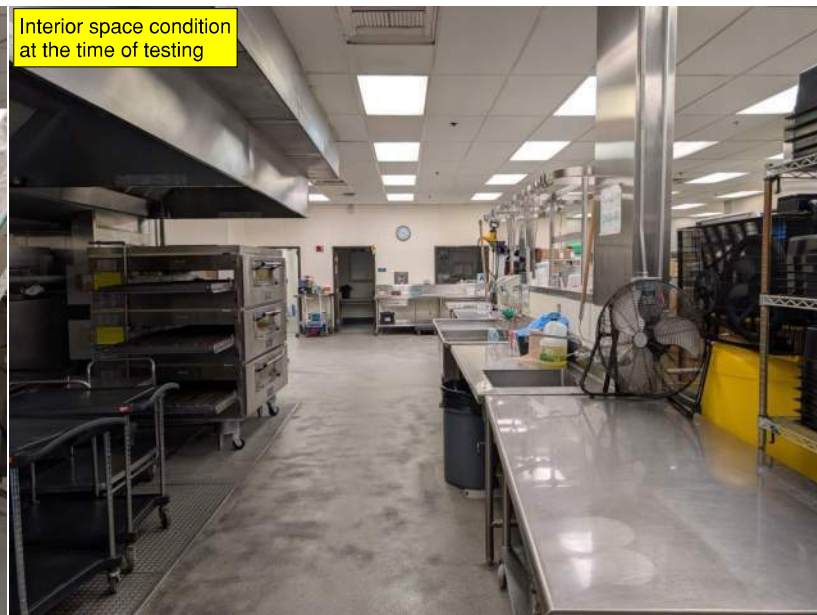
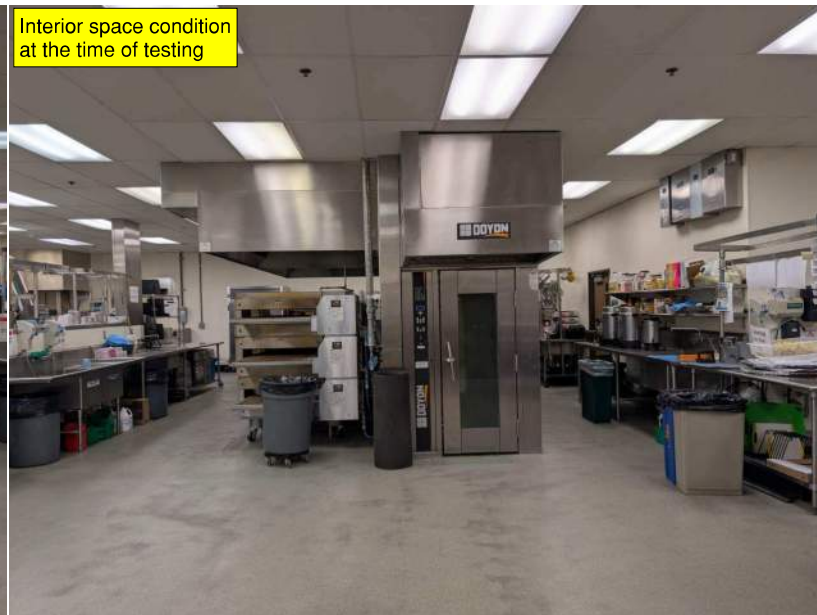
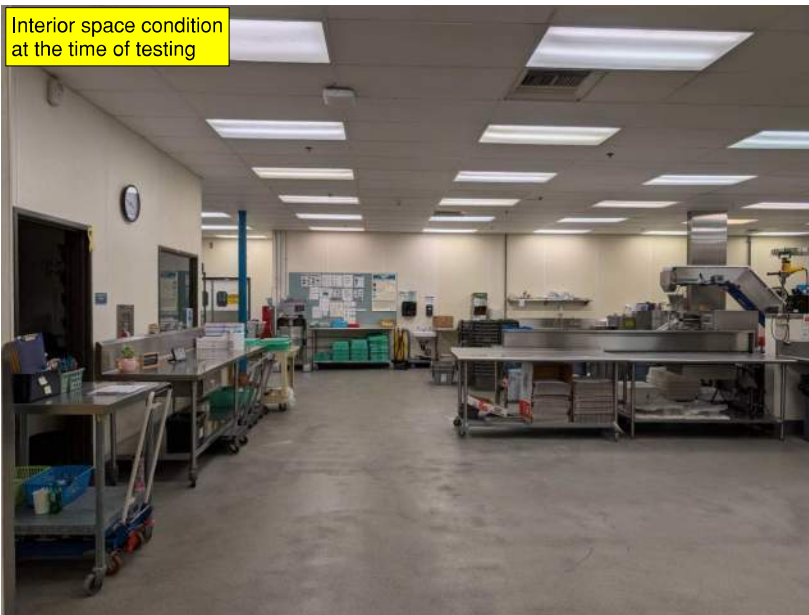
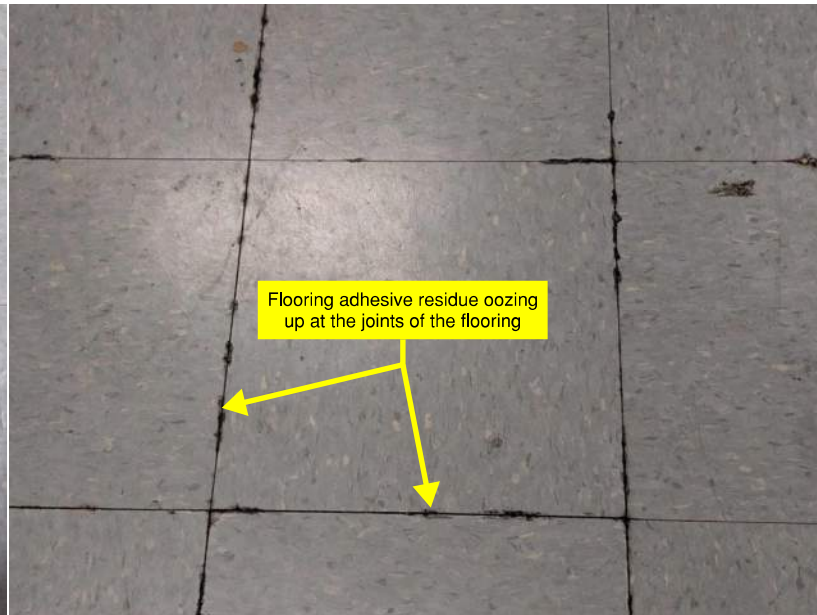
Test Site #8



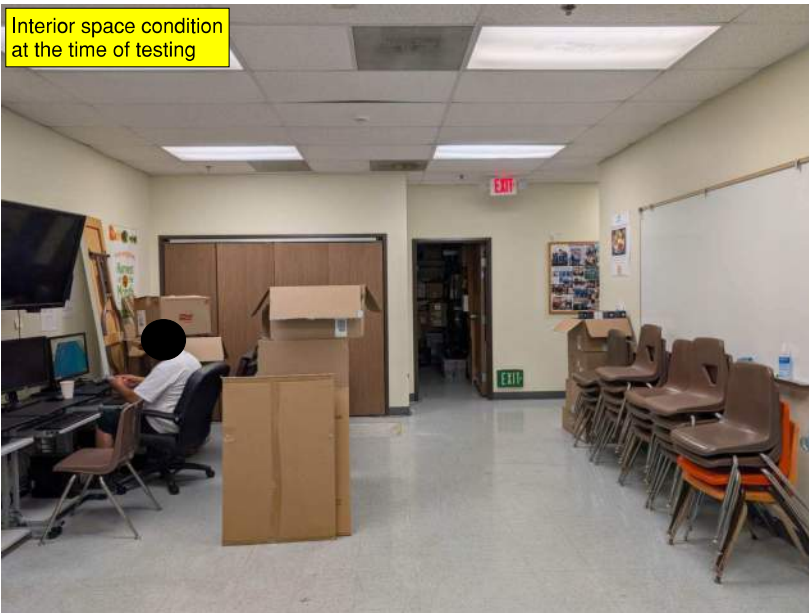
Test Site #9



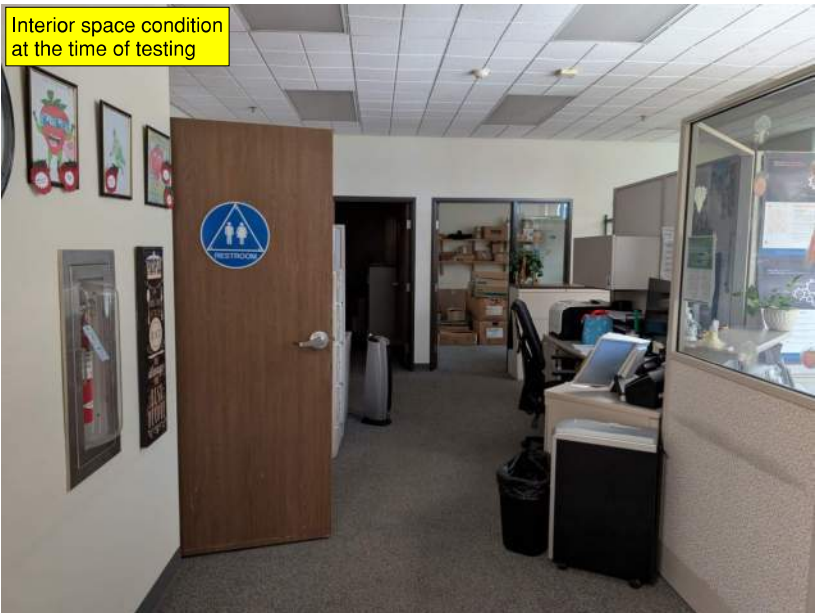




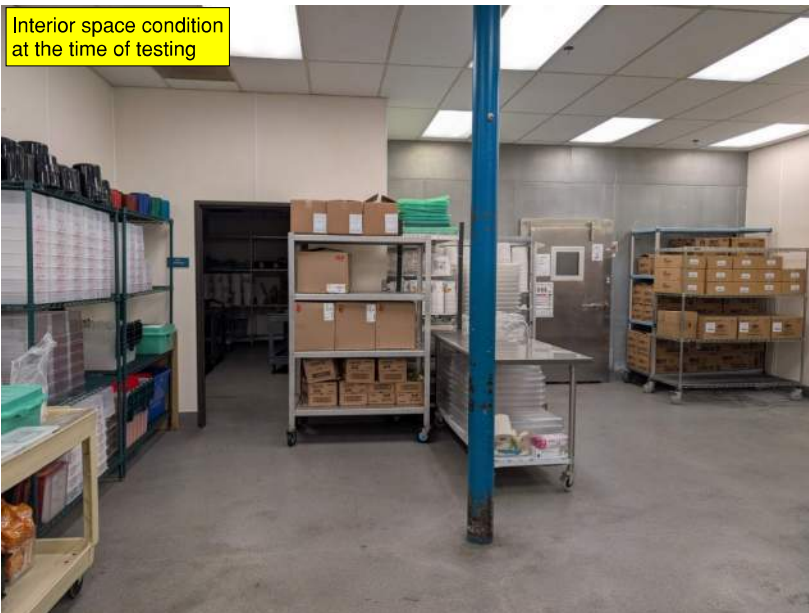
Interior space condition
at the time of testing



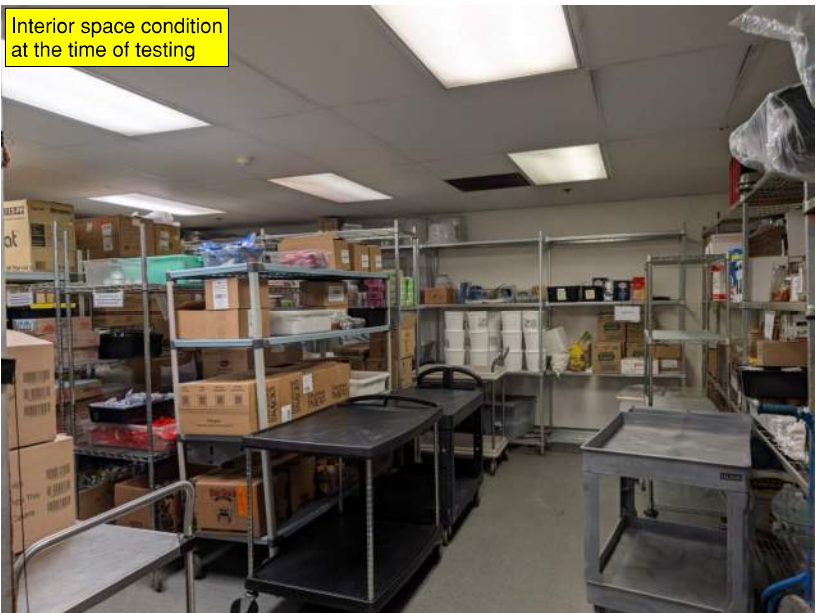
Interior space condition
at the time of testing



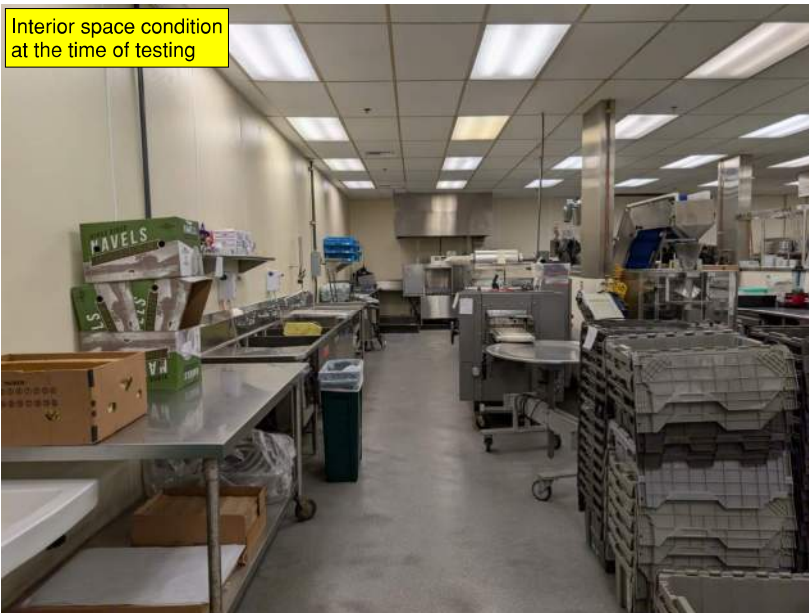
Interior space condition
at the time of testing



Interior space condition
at the time of testing



Interior space condition
at the time of testing



Interior space condition
at the time of testing





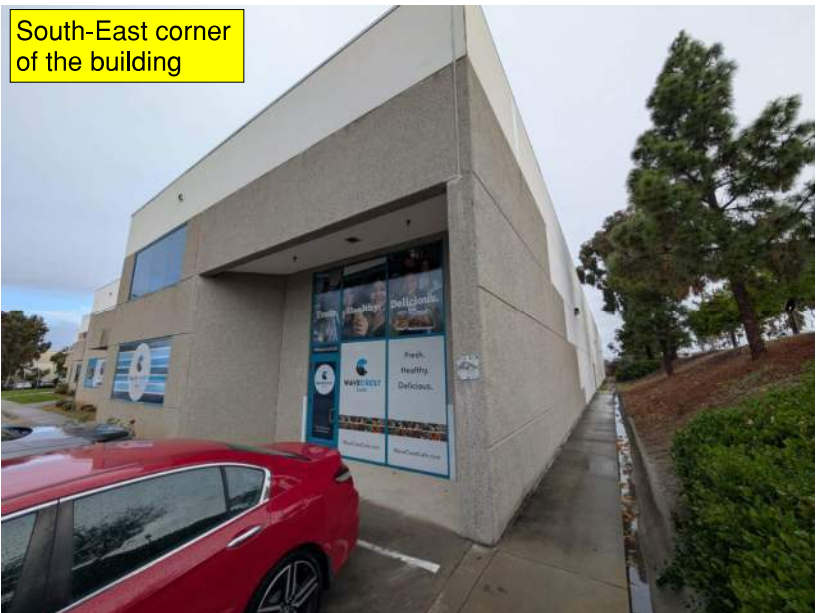
North side of the building



South side of the building



South-East corner of the building



West side of the building



South side of the building



irrigated landscaping in planter beds

Certificate of Certification

presented to

Michael Bivins

*for the successful completion of the ICRI Certification
requirements and is hereby recognized as an*

ICRI Concrete Slab Moisture Testing Technician - Grade 1

Date Certified: 1/25/2024
Valid Through: 1/25/2029



A handwritten signature in black ink that reads "Dale A. Regnier". The signature is written in a cursive style with a horizontal line underneath it.

Dale A. Regnier
Program Director



WWW.ACCURATECMT.COM

mb@accuratecmt.com

ASTM F1869-22

Data & Results of Concrete Moisture Vapor Emission Test

PROJECT: **VUSD Central Kitchen**

ADDRESS: 4680 North Avenue

Oceanside, CA 92056

Job # _____

Testing Performed By: Michael Bivins

Test Kit Manufacturer: VaporScore

pH Test Meter: Extech #2412974

Test #	Location	Initial Wt. (grams)	Final Wt. (grams)	Start		End		Elapsed Time (hours)	(MVER) Results (lbs./1000sq.ft./day)	p.H. Test Result	Surface Absorbs Water	Surface Temp.	Ambient Air Temp.	Ambient Relative Humidity	Notes / Comments
				Day	Time	Day	Time								
1	see test plan	32.3	36.1	5/2/25	1:12 PM	5/5/25	7:43 AM	66.5	6.8	9.5	NO	67.5°	65°	62%	Carpet Tile, Near Exterior Wall
2	see test plan	32.6	35.8	5/2/25	1:14 PM	5/5/25	7:47 AM	66.5	5.8	10.4	NO	68.1°	65°	62%	Carpet Tile Flooring
3	see test plan	32.4	37.2	5/2/25	1:16 PM	5/5/25	7:52 AM	66.5	8.6	10.2	NO	70.4°	65°	62%	Resilient Tile Flooring
4	see test plan	32.4	37.5	5/2/25	1:18 PM	5/5/25	7:57 AM	66.75	9.1	10.4	NO	69.3°	65°	62%	Carpet Tile Flooring
5	see test plan	32.4	37.5	5/2/25	1:20 PM	5/5/25	8:02 AM	66.75	9.1	10.8	NO	65.4°	65°	62%	Resinous Coating
6	see test plan	32.3	36.0	5/2/25	1:22 PM	5/5/25	8:06 AM	66.75	6.6	10.5	NO	64.8°	65°	62%	Resinous Coating
7	see test plan	32.3	37.5	5/2/25	1:24 PM	5/5/25	8:09 AM	66.75	9.3	10.3	NO	64.9°	65°	62%	Resinous Coating
8	see test plan	32.5	34.6	5/2/25	1:26 PM	5/5/25	8:14 AM	66.75	3.8	11.1	NO	60.6°	65°	62%	Resinous Coating
9	see test plan	32.3	35.9	5/2/25	1:29 PM	5/5/25	8:17 AM	66.75	6.5	9.8	NO	61.7°	65°	62%	Resinous Coating
10	see test plan	32.4	33.6	5/2/25	1:31 PM	5/5/25	8:23 AM	67	2.2	9	NO	67.2°	65°	62%	Broadloom Carpet

Summary: Tests < 3 lbs.

1

Tests 3 - 5 lbs.

1

Tests 5 - 8 lbs.

4

Tests > 8 lbs.

4

Slab Thickness

5 inches

Under-Slab Vapor Retarder

YES, 6-mil clear under 2.5" fill

NOTES:

The moisture vapor emission tests were performed in accordance with the test procedure outlined by ASTM F-1869-22

Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F1869-22.4.1

The test results provide a "snapshot" of the moisture vapor transmission. Emission rates will vary with seasonal changes in temperature, humidity, rainfall amounts, and availability to a free water source.



www.AccurateCMT.com

mb@accuratecmt.com

ASTM F2170-19a

Data & Results of Relative Humidity in Concrete Testing

PROJECT: VUSD Central Kitchen
ADDRESS: 4680 North Avenue
Oceanside, CA 92056

Testing Performed By: Michael Bivins
RH Reader & Serial #: Tramex # 12156222
pH Reader & Serial #: Extech # 2412974

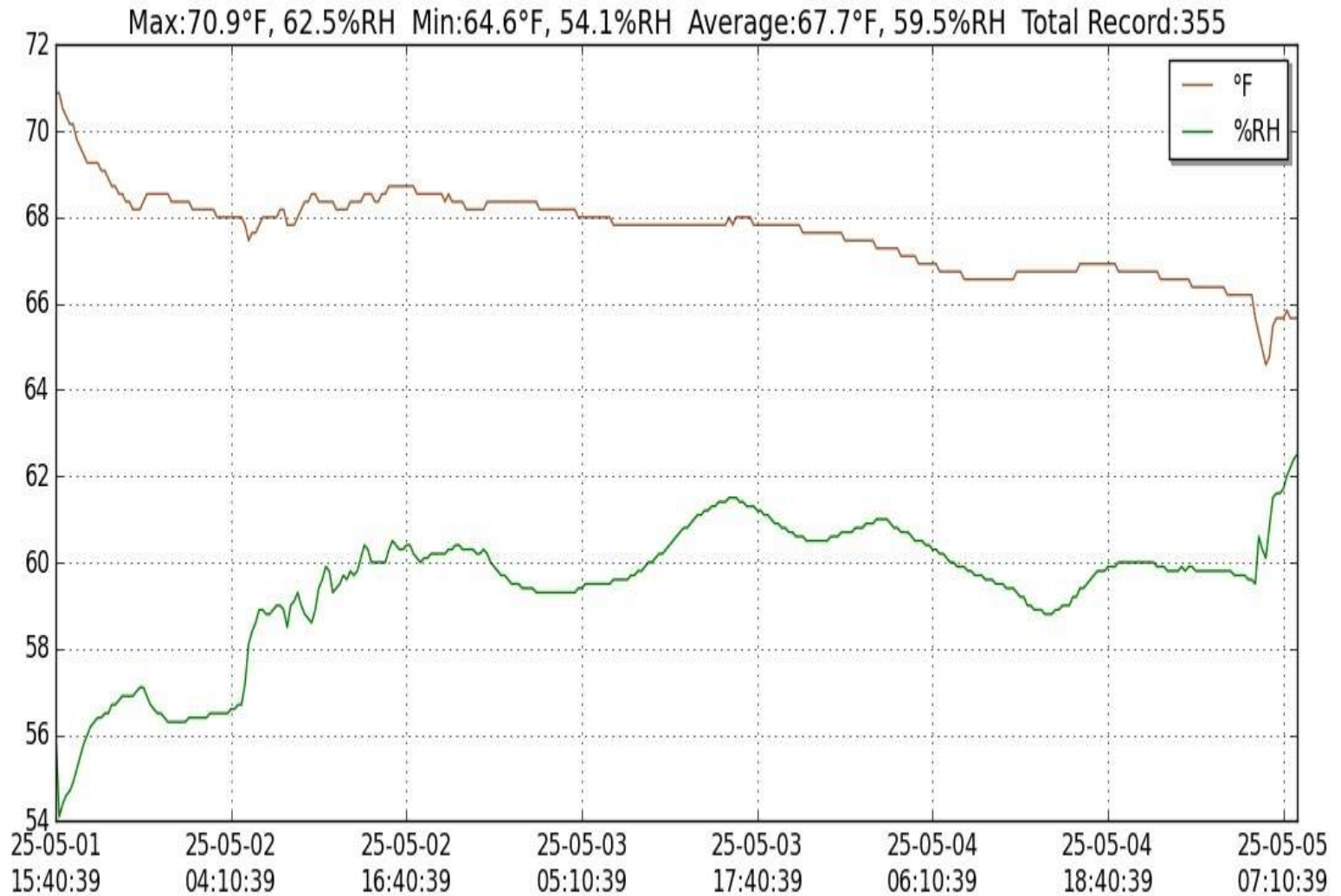
Test #	Location	"RH" in Concrete	Dew Point	Temp in Concrete	Surface Temp.	Probe Depth	Probe Serial Number	Test Date	Test Time	p.h. Test Result	Surface Absorbs Water	Ambient Air Temp	Ambient Air "RH"	Comments / Notes
1	see attached floor plan	80%	64.0°	67°	67.5°	2.0"	DE00190	5/5/2025	7:41 AM	9.5	NO	65°	62%	Carpet Tile, Near Exterior Wall
2	see attached floor plan	92%	65.4°	68°	68.1°	2.0"	DE00191	5/5/2025	7:45 AM	10.4	NO	65°	62%	Carpet Tile Flooring
3	see attached floor plan	93%	67.4°	69°	70.4°	2.0"	DE00189	5/5/2025	7:50 AM	10.2	NO	65°	62%	Resilient Tile flooring
4	see attached floor plan	93%	66.7°	69°	69.3°	2.0"	DE00193	5/5/2025	7:55 AM	10.4	NO	65°	62%	Carpet Tile Flooring
5	see attached floor plan	92%	62.9°	65°	65.4°	2.0"	DE00208	5/5/2025	8:00 AM	10.8	NO	65°	62%	Resinous Coating
6	see attached floor plan	92%	61.8°	64°	64.8°	2.0"	DE00192	5/5/2025	8:04 AM	10.5	NO	65°	62%	Resinous Coating
7	see attached floor plan	92%	60.8°	63°	64.9°	2.0"	DE00201	5/5/2025	8:08 AM	10.3	NO	65°	62%	Resinous Coating
8	see attached floor plan	89%	55.7°	59°	60.6°	2.0"	DE00204	5/5/2025	8:12 AM	11.1	NO	65°	62%	Resinous Coating
9	see attached floor plan	91%	58.6°	61°	61.7°	2.0"	DE00205	5/5/2025	8:16 AM	9.8	NO	65°	62%	Resinous Coating
10	see attached floor plan	76%	56.8°	67°	67.2°	2.0"	DE00196	5/5/2025	8:20 AM	9	NO	65°	62%	Broadloom Carpet

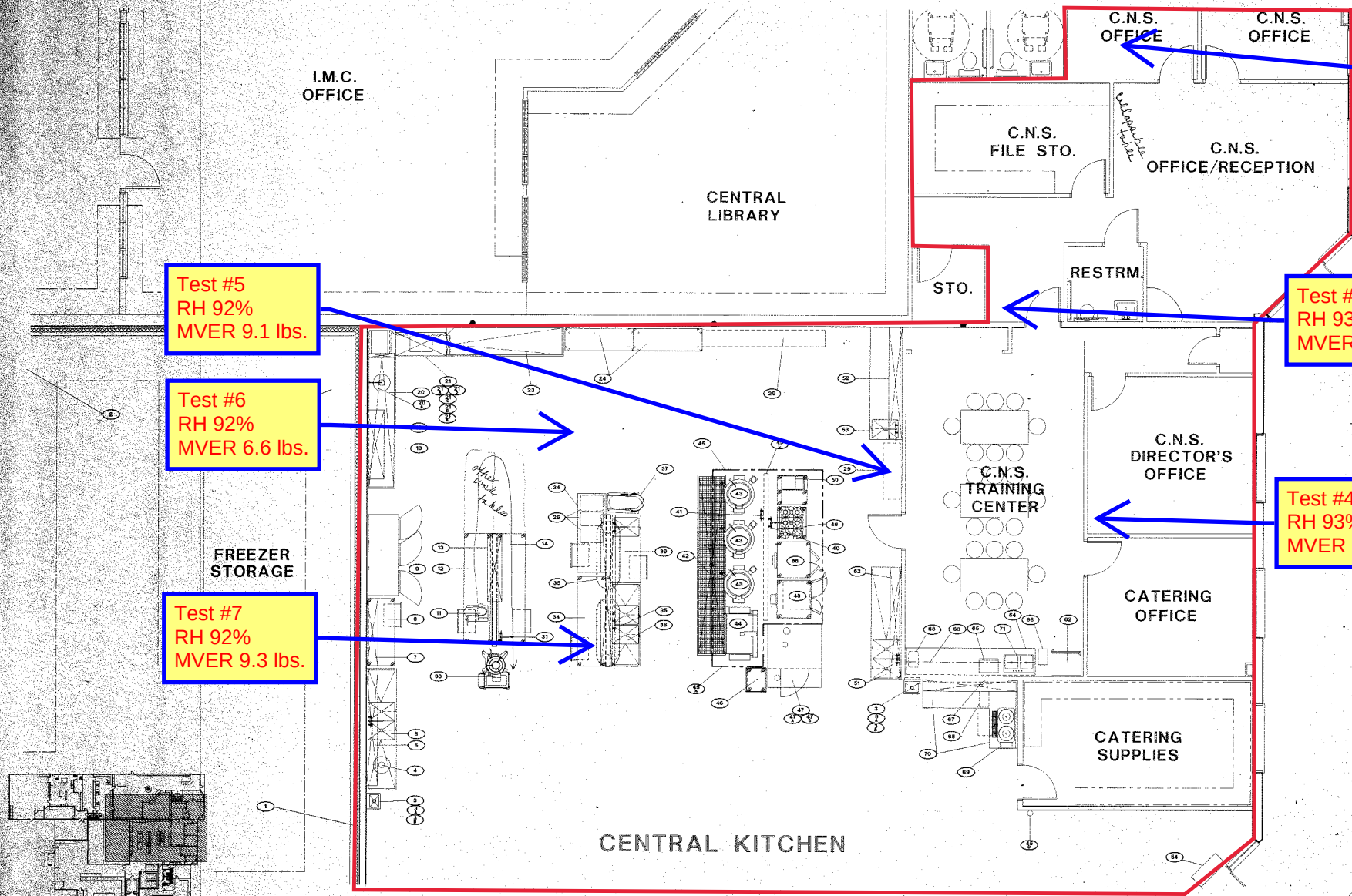
Summary:	Concrete Thickness	Lowest "Internal RH" Result	Highest "Internal RH" Result	Concrete Slab Location	Under-Slab Vapor Retarder
	5 inches	76.0%	93.0%	Slab-on-Grade	YES, 6-mil clear under 2.5" sand fill

NOTES:

- The tests for determining Relative Humidity in concrete floor slabs using in situ probes were performed in accordance with the test procedure outlined by ASTM F2170-19a
- Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F2170-19a.5.3
- Tests were performed using "Tramex CMEXII with Hydro-I" meter and in-situ probes
- All In-situ probes are NIST* calibrated and traceable with a $\pm 2\%$ range of accuracy up to 90%. *National Institute of Standards and Technology
- Moisture levels may vary with seasonal changes in temperature, humidity, rainfall amounts, and most importantly; availability to a free water source (i.e. slab design).

Ambient Air Conditions during Testing





Test #5
RH 92%
MVER 9.1 lbs.

Test #6
RH 92%
MVER 6.6 lbs.

Test #7
RH 92%
MVER 9.3 lbs.

Test #1
RH 80%
MVER 6.8 lbs.

Test #2
RH 92%
MVER 5.8 lbs.

Test #3
RH 93%
MVER 8.6 lbs.

Test #4
RH 93%
MVER 9.1 lbs.

REVISIONS

MICHAEL J. MACOLLEY ASSOCIATES
836 East "J" Street
Chico, CA 95926
(530) 421-3141 Fax (530) 421-4408



CENTRAL KITCHEN FACILITY
VISTA UNIFIED SCHOOL DISTRICT
VISTA, CALIFORNIA

DATE 3/30/98
BY M.L.M.
SCALE 1/4" = 1' - 0"
JOB NO. 9503

SHEET NO.

K-2

FOOD SERVICE EQUIPMENT PLAN
scale 1/4" = 1' - 0"

ALL FOOD SERVICE EQUIPMENT, FURNISHINGS, & FIXTURES SHALL BE CONSTRUCTED TO N.S.F. STANDARDS, U.L. LISTED, & A.G.A. APPROVED

COPYRIGHT © 1996 BY MICHAEL L. MCCOLLEY ASSOCIATES

REVISIONS

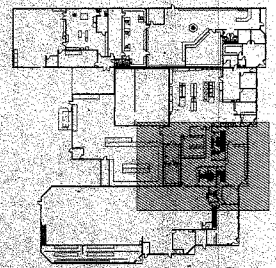
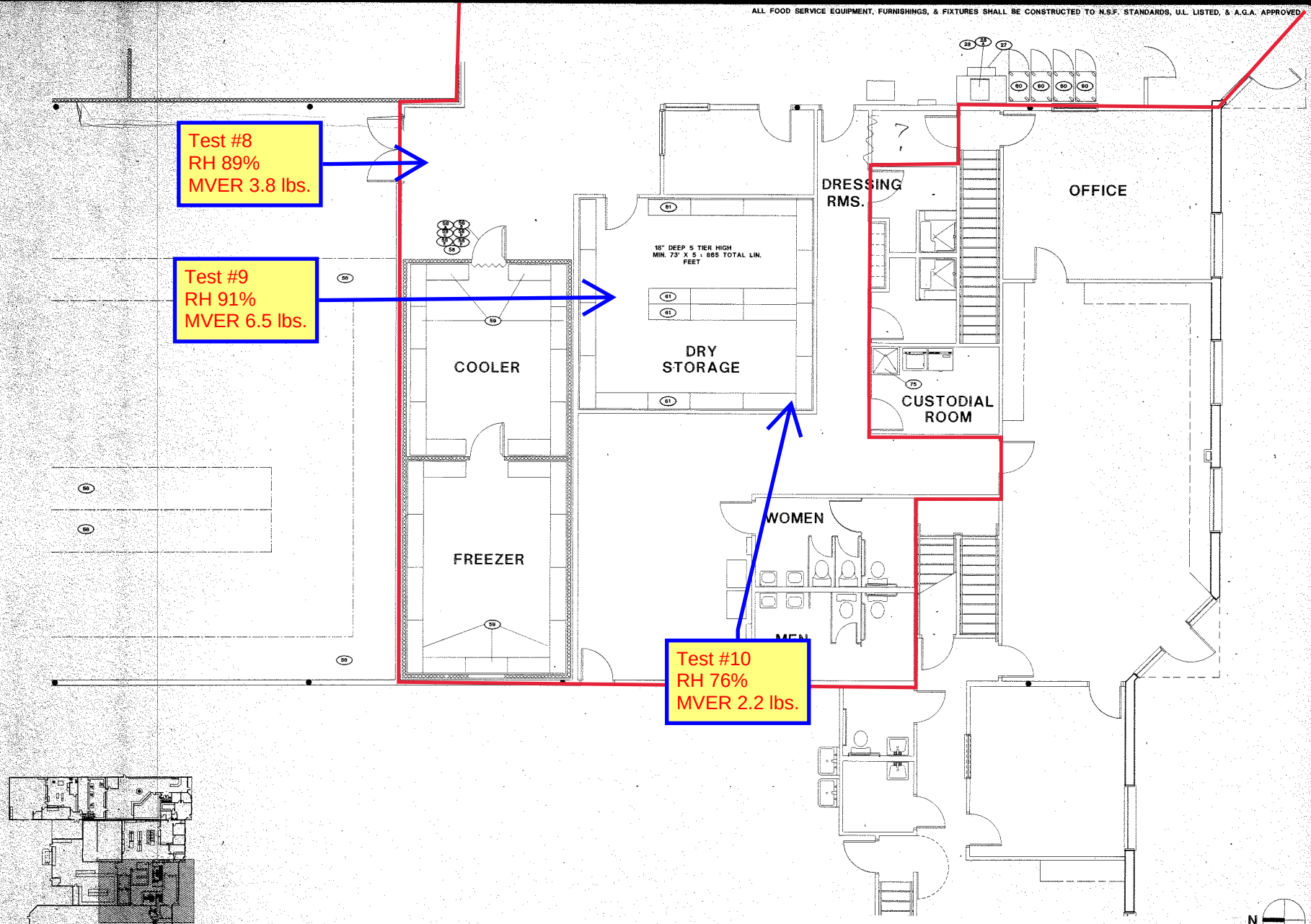
MICHAEL L. MCCOLLEY ASSOCIATES
635 East "J" Street
Chico, CA 95926
(916) 423-3141 Fax (916) 423-4405



CENTRAL KITCHEN FACILITY
VISTA UNIFIED SCHOOL DISTRICT
VISTA, CALIFORNIA

DATE 3/30/96
BY M.L.M.
SCALE 1/4" = 1'-0"
JOB NO. 9503

SHEET NO.
K-4



FOOD SERVICE EQUIPMENT PLAN
scale 1/4" = 1' - 0"

Certificate of Certification

presented to

Michael Bivins

*for the successful completion of the ICRI Certification
requirements and is hereby recognized as an*

ICRI Concrete Slab Moisture Testing Technician - Grade 1

Date Certified: 1/25/2024
Valid Through: 1/25/2029



A handwritten signature in black ink, reading "Dale A. Regnier". The signature is written in a cursive style with a horizontal line underneath it.

Dale A. Regnier
Program Director



www.AccurateCMT.com

mb@accuratecmt.com

ASTM F2170-19a Data & Results of Relative Humidity in Concrete Testing

PROJECT: Vista Academy Kitchen
ADDRESS: 600 North Santa Fe Avenue
Vista, CA 92083

Testing Performed By: Michael Bivins

RH Reader & Serial #: Tramex # 12156222

pH Reader & Serial #: Extech # 2304326

Test #	Location	"RH" in Concrete	Dew Point	Temp in Concrete	Surface Temp.	Probe Depth	Probe Serial Number	Test Date	Test Time	p.h. Test Result	Surface Absorbs Water	Ambient Air Temp	Ambient Air "RH"	Comments / Notes
1	see attached floor plan	88%	62.0°	65°	66.3°	1.6"	BA00180	5/5/2025	6:25 AM	10.5	NO	68°	60%	Resilient Tile, Near Exterior Wall
2	see attached floor plan	93%	59.5°	61°	62.2°	1.6"	BA00181	5/5/2025	6:30 AM	8.9	NO	68°	60%	Two Layers of Resilient Sheet Flooring
3	see attached floor plan	90%	62.7°	65°	66.4°	1.6"	BA00184	5/5/2025	6:33 AM	11.2	NO	68°	60%	Two Layers of Resilient Sheet Flooring
4	see attached floor plan	89%	62.6°	66°	67.1°	1.6"	BA00183	5/5/2025	6:38 AM	8.7	NO	68°	60%	Two Layers of Resilient Sheet Flooring

Summary:	Concrete Thickness	Lowest "Internal RH" Result	Highest "Internal RH" Result	Concrete Slab Location	Under-Slab Vapor Retarder
	3 inches	88.0%	93.0%	Slab-on-Grade	None found 4" below slab

NOTES:

1. The tests for determining Relative Humidity in concrete floor slabs using in situ probes were performed in accordance with the test procedure outlined by ASTM F2170-19a
2. Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F2170-19a.5.3
3. Tests were performed using "Tramex CMEXII with Hydro-I" meter and in-situ probes
4. All In-situ probes are NIST* calibrated and traceable with a $\pm 2\%$ range of accuracy up to 90%. *National Institute of Standards and Technology
5. Moisture levels may vary with seasonal changes in temperature, humidity, rainfall amounts, and most importantly; availability to a free water source (i.e. slab design).



WWW.ACCURATECMT.COM

mb@accuratecmt.com

ASTM F1869-22

Data & Results of Concrete Moisture Vapor Emission Test

PROJECT: Vista Academy Kitchen
ADDRESS: 600 North Santa Fe Avenue
Vista, CA 92083

Job # _____
Testing Performed By: Michael Bivins
Test Kit Manufacturer: VaporScore

pH Test Meter: Extech #2304326

Test #	Location	Initial Wt. (grams)	Final Wt. (grams)	Start		End		Elapsed Time (hours)	(MVER) Results (lbs./1000sq.ft./day)	p.H. Test Result	Surface Absorbs Water	Surface Temp.	Ambient Air Temp.	Ambient Relative Humidity	Notes / Comments
				Day	Time	Day	Time								
1	see test plan	32.3	36.8	5/2/25	1:46 PM	5/5/25	6:28 AM	64.75	8.3	10.5	NO	66.3°	68°	60%	Resilient Tile, Near Exterior Wall
2	see test plan	32.6	42.8	5/2/25	1:49 PM	5/5/25	6:31 AM	64.75	18.8	8.9	NO	62.2°	68°	60%	Resilient Sheet Flooring
3	see test plan	32.4	37.4	5/2/25	1:54 PM	5/5/25	6:35 AM	65	9.2	11.2	NO	66.4°	68°	60%	Resilient Sheet Flooring
4	see test plan	32.4	36.1	5/2/25	1:58 PM	5/5/25	6:40 AM	64.75	6.8	8.7	NO	67.1°	68°	60%	Resilient Sheet Flooring

Summary: Tests < 3 lbs.

0

Tests 3 - 5 lbs.

0

Tests 5 - 8 lbs.

1

Tests > 8 lbs.

3

Slab Thickness

3 inches

Under-Slab Vapor Retarder

None found 4" below slab

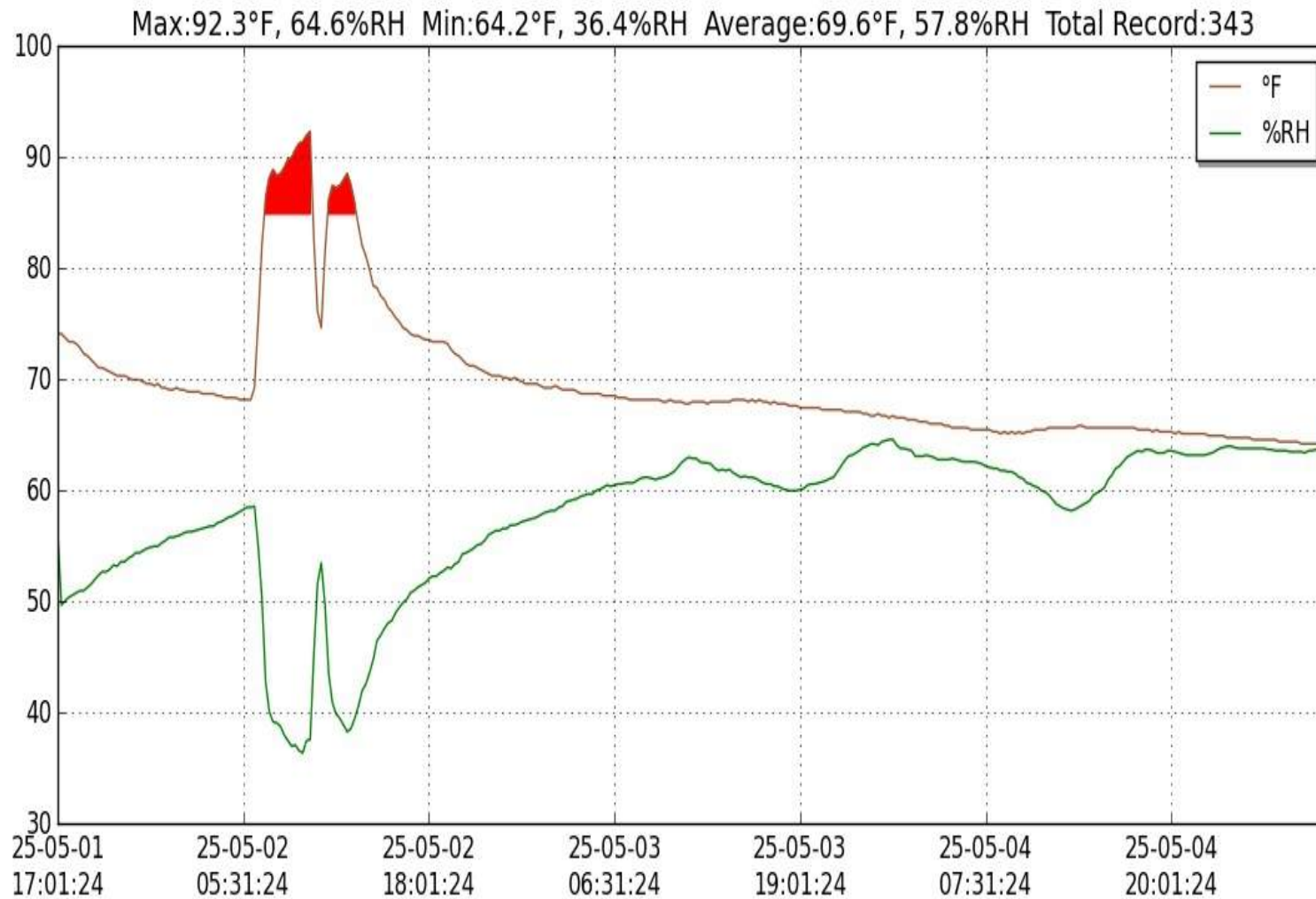
NOTES:

The moisture vapor emission tests were performed in accordance with the test procedure outlined by ASTM F-1869-22

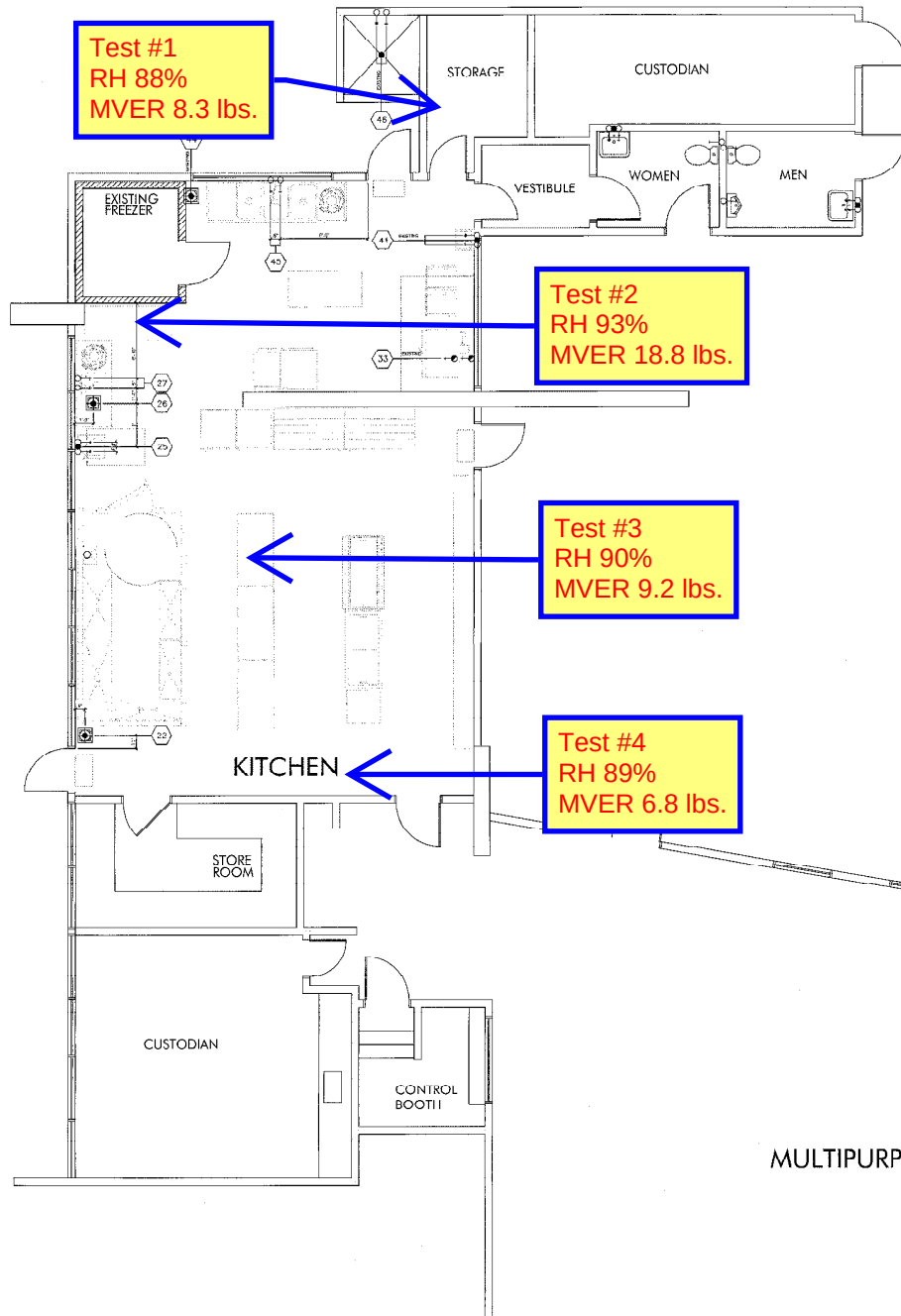
Moisture test results indicate the moisture condition of the slab only at the time of the test. ASTM F1869-22.4.1

The test results provide a "snapshot" of the moisture vapor transmission. Emission rates will vary with seasonal changes in temperature, humidity, rainfall amounts, and availability to a free water source.

Ambient Air Conditions during Testing



Concrete Moisture Testing Locations



PLUMBING NOTES:

1. ALL PLUMBING SHALL BE IN ACCORDANCE WITH THE CITY OF SAN FRANCISCO PLUMBING CODE AND THE CALIFORNIA PLUMBING CODE.
2. PLUMBING CONTRACTOR TO VERIFY ALL EXISTING SERVICE AND MAKE FINAL HOOK-UP TO ALL APPLICABLE EQUIPMENT AND TO PROVIDE ALL FINAL TESTS. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL INDIVIDUAL SHUT-OFF VALVE ON ALL WATER, WASTE AND GAS LINES.
3. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL INDIVIDUAL SHUT-OFF VALVE ON ALL FLOOR AND WALL PENETRATIONS MUST BE SEALED WATER TIGHT AND VISIBLE ABOVE FLOOR.
4. ALL SYMBOLS NOTED +12" +18" ETC. TO STUB-OUT OF WALL AT HEIGHT INDICATED. HEIGHT IS GIVEN FROM FINISHED FLOOR TO CENTER LINE OF STUB-OUT. ALL STUB-UP NOTED "STUB-OUT ARE TO STUB-UP ABOVE FINISHED FLOOR.
5. ALL FLOOR SINKS SPROWN ARE 1/4" TO 3/4" FLOOR WITH FINISHED FLOOR. HANGERS WITH LEGAL AIR GAP.
6. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL REMOVABLE COVERS OR GRILLS FOR ALL FULLY OR PARTIALLY EXPOSED FLOOR SINKS.
7. PLUMBING CONTRACTOR TO PROVIDE DRAIN LINES FROM ALL APPLICABLE COMPONENTS INCLUDING SINKS, TUBS, SHOWERS, AND ANY REMOTE REFRIGERATION TO FLOOR SINK.
8. FLOOR SINK FROM DISH & GLASS WASHING MACHINE TO HAVE 2" DRAIN PIPE.
9. PLUMBING CONTRACTOR TO PROVIDE PRESSURE REGULATING VALVE FOR DISINTEGRITY. ALL 1/2" UP AND DOWN REQUIRED.
10. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL PRESSURE REGULATING VALVES WHERE APPLICABLE.
11. IT IS RECOMMENDED THAT ALL POTABLE WATER LINES HAVE FILTERED WATER FILTERS TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR AND OR OWNER.
12. IT IS RECOMMENDED THAT THE INLET WATER FOR THE WATER HEATER BE SOFTENED. THIS TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR AND OR OWNER.
13. GAS PIPING TO BE BLACK STEEL PIPE WITH MALLEABLE SCREWED FROM FITTINGS.
14. EACH PIECE OF EQUIPMENT SHOULD HAVE ITS OWN GAS COCK AND UNION SHUT-OFF VALVE.
15. FLOOR MATERIAL TO SLOPE 1/4" PER FOOT TOWARD FLOOR DRAINS WHERE APPLICABLE.
16. ALL SOAP AND TOWEL DISPENSERS AND RESTROOM FIXTURES TO BE PROVIDED AND INSTALLED BY GENERAL CONTRACTOR.
17. WATER HEATER/BOILER WILL COMPLY WITH SEC. 160100 U.P.C. 31 FOR THERMAL EXPANSION REQUIREMENTS.
18. PLUMBING TO PROVIDE ACCESSIBLE FLOW CONTROL ON THE GREASE TRAP. O.P.C. SECTION 3105.
19. PLUMBING TO PROVIDE ALL KITCHEN EQUIPMENT'S FINAL VENT, WATER AND WASTE LINES HOOK-UP PER PLANS AND SPECIFICATIONS.
20. WATER SUPPLY TO CONDENSATORS SHALL BE PROTECTED BY AN APPROVED REDUCED PRESSURE PRINCIPLES BACKFLOW PREVENTER. TO BE RETIRED BY AN AREA ACCESSIBLE FOR TESTING. RELIEF VALVE SHALL BE SUBJECT TO SINKER WITH A LEGAL AIR GAP.
21. APPROVED BACKFLOW PREVENTION DEVICES SHALL BE PROPERLY INSTALLED. VENTING SHALL BE PERMITTED TO EXHAUST OUTSIDE THE BUILDING. IF WATER IS A SOURCE OF CONTAMINATION, NOSES SHALL NOT BE ATTACHED TO A FAUCET OR HOSE END UNLESS AN APPROVED BACKFLOW PREVENTER IS PROVIDED.

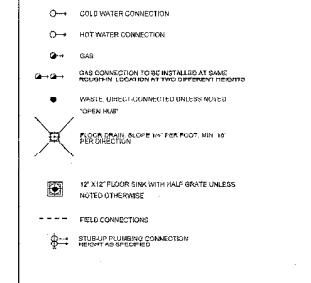
WATER HEATER CALCULATIONS

PER HEALTH DEPARTMENT	
1. MOP SINK	- 15 GPH
2. 3-COMP. POT SINK	- 42 GPH
3. HAND SINK	- 10 GPH
4. FOOD PREP. SINK	- 5 GPH
5. LAUNDRY SINK	- 10 GPH
TOTAL	- 82 GPH
$82 \times 60 \times 8.33$	
75	
= 54,645 BTU	

WATER HEATER SPECIFICATION

MANUFACTURE: A.O. SMITH OR EQUAL
MODEL: BT-65 OR EQUAL
TANK SIZE: 65 GAL
BTU/H: 65,000
RECOVERY: 100 GPH @ 60° RISE

PLUMBING LEGEND:



REVISIONS

COOLER AT VAPA
VISTA ACADEMY OF PERFORMING ARTS
600 N. SANTA FE AVE., VISTA, CA 92083
VISTA UNITED SCHOOL DISTRICT
1234 ARCADIA AVE., VISTA, CA 92084



ALPHA STUDIO
Design Group
6152 Innovation Way
Carlsbad, CA 92009
P: 760 431-2444
F: 760 431-2440

www.alpha-studio-design.com



@PLTDATE

APPROVALS

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04
AC: RLS SS
DATE:

FS EQUIPMENT PLUMBING
ROUGH-IN PLAN
VISTA ACADEMY OF
PERFORMING ARTS

FS-4.0

PLT Date: @RTDATELONG

@EDWGFULLNAME

ASEG JOB NUMBER: 13-034

Certificate of Certification

presented to

Michael Bivins

*for the successful completion of the ICRI Certification
requirements and is hereby recognized as an*

ICRI Concrete Slab Moisture Testing Technician - Grade 1

Date Certified: 1/25/2024
Valid Through: 1/25/2029



A handwritten signature in black ink, reading "Dale A. Regnier". The signature is written in a cursive style with a horizontal line underneath it.

Dale A. Regnier
Program Director