TG13.2 – Roofing / Waterproofing

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

Question No.	Submission Date	Question	Response
TG13.2-007	1/26/2015	Please see the attached Request for Substitution.	The request for substitution proposes substituting a hot rubberized asphalt waterproofing membrane for the 2 layer (2-ply) PVC membrane specified for the Roof Park Level. This Request for Substitution is rejected for the following reasons: 1. The specified system is loose-laid, avoiding the telegraphing of earthquake-generated or other concrete cracks. The proposed system is adhered to the structure, and the proposed waterproofing will shear when structural cracks exceed a certain size. 2. Specified system is redundant—it contains two separate layers (2 plys) vs. the one layer (1 ply) of the proposed system. 3. The proposed substitution system does not provide remediation in a manner similar to the specified system, i.e., from below to repair roof leaks, if they occur, without the removal of the park elements.

[redacted]

TO: Webcor Obayashi Joint Venture January 26, 2015

RE: Transbay Terminal / Projects changed from Sarnafil to MM 6125/ other references

Howard Hughes Medical Institute HHMI
Ashburn , VA
RVA
Turner Construction

This is a large 200,000 SF earth covered structure that was installed in 2003 with a Sarnafil Assembly, very similar to what is proposed on the Transbay Terminal. First layer of Sarnafil attached with grid method, and second layer loose laid. This was a failure and the Sarnafil was removed and MM 6125 installed starting in 2012. I can provide more documentation .

Children's Hospital of Philadelphia - CHOP
Philadelphia, PA

Sarnafil was originally specified on an Intensive Vegetated Roof . It was concluded that PVC would not work on many of the details. MM 6125 was suggested and accepted and work began 1Q14. This was a 15, 000 SF Intensive Vegetated Roof. We also installed MM 6125 on a 115,000 SF plaza on the project.

Duke Eye Center
Durham , NC

This was specified multiple layers of foam insulation and a fully adhered Sarnafil. This was switched to MM 6125 direct to the deck and 6 inches of Styrofoam insulation. This project is currently being installed.

There are also numerous projects at the Air Force Academy that were switched from Sarnafil to MM 6125 for performance reasons.

Other significant earth covered structures using MM 6125 are the **City Creek Project in SLC, UT**; the **California Academy of Sciences** in SFO, **Yerba Buena Park at Moscone in SFO**, and the **West Campus for Facebook** in Menlo Park (under construction).

Sincerely yours,

[redacted]

[redacted]

00 04 41 – PRE-BID REQUEST FOR SUBSTITUTION

During the bidding period, a proposed change by a bidder of a product, equipment, or service required by the Contract Documents is considered a pre-bid request for substitution. A pre-bid request for substitution will be considered as part of the questions on bid documents (QBD) process. Refer to the CM/GC's Bid Manual for QBD instructions and forms.

During the bidding period and prior to the deadline for the submission of QBDs, Bidders may submit a request for a substitution of an "or equal" product, equipment, or service specified in the Contract Documents by completing and submitting this form as an attachment to a QBD, in accordance with the QBD process. The TJPA will respond in writing to a pre-bid request for substitution in accordance with the QBD process and deadlines specified in the bidding documents.

Pre-bid requests for substitution requested during the bidding period and accepted by Addendum prior to opening of bids are included in the Contract Documents.

Spec. Section: 07-13-14 Date: January 26, 2015

Drawing Sheet: PVC Waterproofing, WPM-3 Paragraph(s):

Detail(s):

Proposed Substitution: American Hydrotech Monolithic Membrane 6125

Manufacturer/Address/Phone: 303 Ohio Street, #2700, Chicago, IL 60611 312 337-4998

Trade Name/Model No.: MM6125FR Dual Membrane

Product History: ___ New _____ 2-5 years old _____ 5-10 years old X More than 10 years old

Differences between proposed substitution and specified product (attach required point-by-point comparative data):

MM6125 has a 50 year impeccable track record. Membrane is fully bonded to the deck and is overlaid with uncured neoprene. PVC sheet is loose laid.

Reason for not providing specified item:

Hydrotech applicators have extensive successful track record with MM6125 in the local market versus limited experience with loose laid PVC in a buried condition

Similar installation where proposed substitution has been used (Project/Address/Architect/Owner/Date Installed):

Please see attached

Proposed substitution affects other parts of the Work: X No ___ Yes: explain

Changes or modifications needed to coordinate other parts of the Work that will be necessary to accommodate the proposed substitution:

None

Supporting data attached: _X_ Product Data _X_ Drawings _X_ Test Reports _X_ Samples

___ Manufacturer's Standard Form of Warranty or Guarantee

Other: Specification attached

The Bidder certifies that

- The proposed substitution has been fully investigated and determined to be equal or superior in all respects to the specified product.
- The proposed substitution conforms in all respects to the requirements of the Contract Documents and all applicable regulatory requirements and is appropriate for the application intended.
- The same warranty or guarantee for the specified product will be furnished for the proposed substitution.
- The proposed substitution does not affect dimensions or functional clearances.

Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Attachments Product literature & data sheets; earth cover projects in San Francisco; San Francisco selected projects list; letter where switched to MM6125; performance advantages

END OF SECTION 00 04 41

SPECIFICATION ISSUE LOG

Revision	Date
0	August 11, 2014

[redacted]

USA

earth covered

Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
FACEBOOK	SAN FRANCISCO ,	sqft	300,000 sqft	Gehry	50%
PLUM LIBRARY	LOMBARD , IL	sqft	21,000 sqft	SKIDMORE, OWINGS & MERRILL	11/1/77
UNIVERSITY OF LOUISVILLE MEDICAL CENTER PARKING #1	LOUISVILLE , KY	sqft	45,000 sqft	RYAN COOKE & ZURN ASSOCIATES, INC.	12/31/78
NORTH RIVER WATER WASTE TREATMENT PLANT	NEW YORK , NY	sqft	310,000 sqft	T.A.M.S.	7/11/85
UNIVERSITY OF UTAH MERRILL ENGINEERING BUILDING	SALT LAKE CITY , UT	sqft	63,230 sqft	DEAN L. GUSTAVSON ASSOCIATES	8/5/86
THE OHIO HISTORICAL SOCIETY- PLAZA DECK REDESIGN	COLUMBUS , OH	sqft	140,300 sqft	ROBERT J. BREGAR ASSOCIATES, INC.	6/30/87
ITASCA GARAGE PEDESTRIAN TUNNEL	MINNEAPOLIS , MN	sqft	7,000 sqft	R.A. PETERSON	4/1/88
LEAVEY CENTER STUDENT ACTIVITIES & GUEST FACILITY	WASHINGTON , DC	sqft	137,500 sqft	SKIDMORE, OWINGS & MERRILL	11/15/88
I-90 LID - 23 RD AVENUE TO LAKE WASHINGTON	SEATTLE , WA	sqft	338,200 sqft	H.N.T.B. / ARAI JACKSON	6/9/89
WATERGARDENS - PHASE I	SANTA MONICA , CA	sqft	410,000 sqft	MCLARAND, VASQUEZ & PARTNERS, INC.	7/16/91
OHIO STATEHOUSE RESTORATION - PHASE I	COLUMBUS , OH	sqft	2,216 sqft	SCHOOLEY CALDWELL ASSOCIATES, ARCHITECTS	8/15/91
CODORNIU WINERY (currently known as ARTESIA WINERY)	NAPA , CA	71,028 sqft	sqft	E.R. BOULIGNY, A.I.A.	11/1/91
OPUS ONE WINERY	YOUNTVILLE , CA	sqft	33,900 sqft	ROSENBERG MCGINNIS	12/1/91
UNITED AIRLINES COMPUTER FACILITY	ELK GROVE , IL VILLAGE	sqft	9,900 sqft	TENG & ASSOCIATES	8/31/92
TEXAS STATE CAPITOL - CAPITOL EXTENSION	AUSTIN , TX	sqft	200,400 sqft	3D/INTERNATIONAL, INC., FORD, POWELL & CARSON, INC. - JV	10/29/92
OHIO STATEHOUSE RESTORATION - PHASE 4	COLUMBUS , OH	sqft	65,214 sqft	SCHOOLEY CALDWELL ASSOCIATES	4/1/93
GALLIVAN CENTER (FORMERLY BLOCK 57)	SALT LAKE CITY , UT	sqft	124,000 sqft	JOHN E PACE & ASSOCIATES	6/1/93

* No completion date indicates ongoing project

[redacted]

Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
LOYOLA MEDICAL CENTER TUNNEL	MAYWOOD , IL	sqft	39,667 sqft	STANLEY CONSULTANT, INC.	11/1/94
GALLIVAN CENTER PLAZA EXTENSION	SALT LAKE CITY , UT	sqft	24,700 sqft	EDWARDS & DANIELS ARCHITECTS, INC.	8/21/98
MASHANTUCKET PEQUOT MUSEUM & RESEARCH CENTER	MASHANTUCKET , CT	sqft	75,000 sqft	POLSHEK & PARTNERS	11/30/98
LDS ASSEMBLY BUILDING	SALT LAKE CITY , UT	sqft	343,805 sqft	ZIMMER GUNSUL FRASCA PARTNERSHIP	8/1/00
GROVE PARK INN & SPA	ASHEVILLE , NC	sqft	44,963 sqft	LS3P ARCHITECTS	2/15/01
WASHINGTON PARK RENOVATION AND PARKING GARAGE	CINCINNATI , OH	sqft	89,000 sqft	BHDP ARCHITECTURE	7/6/12

* No completion date indicates ongoing project

[redacted]

Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
CHINESE HOSPITAL	SAN FRANCISCO , CA	sqft	1700 sqft	JACOBS	
1180 4TH STREET	SAN FRANCISCO , CA	20,700 sqft	sqft	DANIEL SOLOMON DESIGN PARTNERS	
UCSF MISSION BAY BLOCK 25 A	SAN FRANCISCO , CA	1,200 sqft	sqft	WRNS STUDIO	
AVANT HOUSING - 900 FOLSOM	SAN FRANCISCO , CA	10,045 sqft	sqft	ARCHITECTURE INTERNATIONAL	
AVANT HOUSING - 900 FOLSOM	SAN FRANCISCO , CA	sqft	14800 sqft	ARCHITECTURE INTERNATIONAL	
SANSOME AND BROADWAY AFFORDABLE FAMILY HOUSING #339	SAN FRANCISCO , CA	sqft	1900 sqft	DANIEL SOLOMON DESIGN PARTNERS INC.	
SAN FRANCISCO INTERNATIONAL AIRPORT REPLACEMENT AIRPORT TRAFFIC CONTROL TOWER	SAN FRANCISCO , CA	sqft	3800 sqft	FENTRESS ARCHITECTS	
SAN FRANCISCO PUBLIC SAFETY BUILDING	SAN FRANCISCO , CA	sqft	10100 sqft	HOK	
SAN FRANCISCO PUBLIC SAFETY BUILDING	SAN FRANCISCO , CA	11,100 sqft	sqft	HOK	
SAN FRANCISCO PUBLIC SAFETY BUILDING	SAN FRANCISCO , CA	8900 sqft	sqft	HOK	
SAN FRANCISCO PUBLIC SAFETY BUILDING	SAN FRANCISCO , CA	15800 sqft	sqft	HOK	
DR GEORGE DAVIS SENIOR BUILDING	SAN FRANCISCO , CA	4700 sqft	sqft	DAVID BAKER ARCHITECTS	
1400 MISSION STREET	SAN FRANCISCO , CA	9500 sqft	sqft	BRAND + ALLEN ARCHITECTS	
222 SECOND STREET	SAN FRANCISCO , CA	sqft	5500 sqft	GENSLER	
FACEBOOK	SAN FRANCISCO ,	sqft	sqft		
INTERNATIONAL LONGSHOREMAN & WAREHOUSEMANS UNION	SAN FRANCISCO , CA	23000 sqft	sqft	JOSEPH TAYLOR & ASSOCIATES	12/31/73
MARRIOTT (SAN FRANCISCO)	SAN FRANCISCO , CA	sqft	26,000 sqft	DANIEL, MANN, JOHNSON, MENDEDHALL	9/1/89

* No completion date indicates ongoing project

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Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
SAN FRANCISCO FASHION CENTER	SAN FRANCISCO , CA	sqft	112,500 sqft	JOHN PORTMAN & ASSOCIATES	8/1/90
RITZ CARLTON	SAN FRANCISCO , CA	sqft	10,000 sqft	WHISLER-PATRI	6/30/91
PEDIATRICS CLINIC RELOCATION AND PLAZA RESTORATION	SAN FRANCISCO , CA	sqft	5,500 sqft	THE RATCLIFF ARCHITECTS	9/30/92
YERBA BUENA GARDENS/VISUAL ARTS CENTER	SAN FRANCISCO , CA	24,000 sqft	sqft	ROBINSON MILLS & WILLIAMS	5/28/93
BANK OF AMERICA - DATA CENTER	SAN FRANCISCO , CA	34,300 sqft	sqft	ROSENBERG MCGINNIS, AIA, INC.	1/10/94
YERBA BUENA GARDENS - THEATRE	SAN FRANCISCO , CA	sqft	15,100 sqft	JAMES STEWART POLSHEK & PARTNERS	1/31/94
SAN FRANCISCO MAIN LIBRARY	SAN FRANCISCO , CA	5,100 sqft	sqft	PEI COBB FREED & PARTNERS	10/1/95
SAN FRANCISCO MAIN LIBRARY	SAN FRANCISCO , CA	sqft	21,400 sqft	PEI COBB FREED & PARTNERS	10/1/95
SAN FRANCISCO MAIN LIBRARY	SAN FRANCISCO , CA	sqft	4,500 sqft	PEI COBB FREED & PARTNERS	10/1/95
ONE HILLS PLAZA	SAN FRANCISCO , CA	500 sqft	sqft	ROSENBERG MCGINNIS AIA INC.	3/15/96
ISABELLE TOWERS	SAN FRANCISCO , CA	8000 sqft	sqft	DIVISION 7 CONSULTANTS, INC.	8/15/96
360 POST L.P.	SAN FRANCISCO , CA	800 sqft	sqft	ROSENBERG MCGINNIS, AIA INC.	10/18/96
360 POST L.P.	SAN FRANCISCO , CA	sqft	1,000 sqft	ROSENBERG MCGINNIS, AIA INC.	10/18/96
SAN FRANCISCO CIVIC CENTER	SAN FRANCISCO , CA	16,000 sqft	sqft	SKIDMORE, OWINGS & MERRILL	8/1/98
SAN FRANCISCO CIVIC CENTER	SAN FRANCISCO , CA	sqft	20,000 sqft	SKIDMORE, OWINGS & MERRILL	8/1/98
TEN MILLER PLACE APARTMENTS	SAN FRANCISCO , CA	2,500 sqft	sqft		8/1/98
MIDDLE HALL - UNIVERSITY OF CALIFORNIA AT BERKELEY	SAN FRANCISCO , CA	sqft	1,100 sqft		5/7/99

* No completion date indicates ongoing project

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Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
YERBA BUENA GARDENS ENTERTAINMENT CENTER	SAN FRANCISCO , CA	sqft	50,500 sqft	SIMON MARTIN-VEGUE WINKELSTEIN MORRIS	5/30/99
THE CECIL WILLIAMS GLIDE COMMUNITY HOUSE	SAN FRANCISCO , CA	sqft	2,143 sqft	MICHAEL WILLIS & ASSOCIATES	7/19/99
101 SECOND STREET	SAN FRANCISCO , CA	sqft	7,000 sqft	SKIDMORE OWINGS & MERRILL	11/1/99
101 SECOND STREET	SAN FRANCISCO , CA	26,000 sqft	sqft	SKIDMORE OWINGS & MERRILL	11/1/99
SAN FRANCISCO AIRPORT - BOARDING AREA G	SAN FRANCISCO , CA	sqft	3,000 sqft	HOK HELLMUTH, OBATA & KASSABAUM/GROUP4/ROBERT B. WONG	12/1/99
FIRST UNITARIAN CHURCH	SAN FRANCISCO , CA	sqft	4,500 sqft	ROSENBERG MCGINNIS	1/1/00
150 CALIFORNIA STREET	SAN FRANCISCO , CA	sqft	6,200 sqft	HOK HELLMUTH, OBATA & KASSABAUM	1/31/00
SAN FRANCISCO MULTIMEDIA	SAN FRANCISCO , CA	sqft	13,100 sqft	PFAU	5/1/00
RHODA HAAS GOLDMAN PLAZA	SAN FRANCISCO , CA	sqft	6,800 sqft	B.A.R.	6/7/00
215 FREMONT STREET BUILDING SF	SAN FRANCISCO , CA	12,000 sqft	sqft		12/30/00
GAP EMBARCADERO	SAN FRANCISCO , CA	sqft	63,000 sqft	GENSLER	12/31/00
PACIFIC HEIGHTS	SAN FRANCISCO , CA	sqft	1,000 sqft	HKS ARCHITECTS INC.	8/30/01
UNIVERSITY OF THE PACIFIC - SCHOOL OF DENTISTRY	SAN FRANCISCO , CA	sqft	3,100 sqft	RATCLIFF ARCHITECTS	8/31/01
SAN FRANCISCO INTERNATIONAL AIRPORT - INTERNATIONAL TERMINAL	SAN FRANCISCO , CA	64,500 sqft	sqft	JVA	9/15/01
FOUR SEASONS HOTEL	SAN FRANCISCO , CA	sqft	5,000 sqft	SIMPSON, GUMPERTZ, HAGER / GARY EDWARD HANDEL ARCHITECTS	12/1/01
55 SECOND STREET	SAN FRANCISCO , CA	21,500 sqft	sqft	HKS ARCHITECTS	2/1/02
CHARLES SCHWAB	SAN FRANCISCO , CA	sqft	2,500 sqft	SMITHGROUP	3/24/02

* No completion date indicates ongoing project

[redacted]

Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
MISSION BAY BUILDING 28	SAN FRANCISCO , CA	sqft	3,500 sqft	STUDIOS ARCHITECTS	5/15/02
DOW PLACE	SAN FRANCISCO , CA	sqft	8,000 sqft	KOTAS PANTALEONI ARCHITECTS	6/30/02
560 MISSION	SAN FRANCISCO , CA	5,000 sqft	sqft	KENDALL / HEATON ASSOCIATES INC.	6/30/02
560 MISSION	SAN FRANCISCO , CA	sqft	20,000 sqft	KENDALL / HEATON ASSOCIATES INC.	6/30/02
FIRST AND HOWARD STREET - BUILDING 2	SAN FRANCISCO , CA	sqft	33,900 sqft	STUDIOS ARCHITECTURE	7/30/02
BRIDGEVIEW	SAN FRANCISCO , CA	sqft	16,500 sqft	HKS ARCHITECTS	7/31/02
370 DORANTES	SAN FRANCISCO , CA	sqft	1,500 sqft	AQUATECH CONSULTING INC.	10/29/02
ASIAN ART MUSEUM	SAN FRANCISCO , CA	29,300 sqft	sqft	HOK / LDA / RWA	12/6/02
CLUB QUARTERS HOTEL	SAN FRANCISCO , CA	13,800 sqft	sqft	MWM ARCHITECTS	3/1/03
AVALON AT MISSION BAY	SAN FRANCISCO , CA	sqft	23,500 sqft	HKS ARCHITECTS	4/1/03
WILLIAM SONOMA	SAN FRANCISCO , CA	sqft	1,000 sqft	HANNIVAL ASSOCIATES	6/20/03
KOKORO ASSISTED LIVING	SAN FRANCISCO , CA	2,800 sqft	sqft	KODAMA DISENO ARCHITECTS & PLANNERS	8/1/03
MISSION BAY - BLOCK N1	SAN FRANCISCO , CA	sqft	80,000 sqft	HKS ARCHITECTS, INC.	4/30/04
THE J. DAVID GLADSTONE INSTITUTE	SAN FRANCISCO , CA	32,400 sqft	sqft	NBBJ	10/7/04
THE J. DAVID GLADSTONE INSTITUTE	SAN FRANCISCO , CA	sqft	2,200 sqft	NBBJ	10/7/04
1366 TURK STREET	SAN FRANCISCO , CA	3,800 sqft	sqft	N/A	7/27/05
SAN FRANCISCO CONSERVATORY OF MUSIC	SAN FRANCISCO , CA	2,000 sqft	sqft	SMWM	3/17/06

* No completion date indicates ongoing project

[redacted]

Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
SAN FRANCISCO CONSERVATORY OF MUSIC	SAN FRANCISCO , CA	sqft	2,000 sqft	SMWM	3/17/06
2630 DIVISADERO	SAN FRANCISCO , CA	sqft	200 sqft		6/30/06
235 BERRY STREET CONDOMINIUMS	SAN FRANCISCO , CA	11,700 sqft	sqft	LEDDY MATUM STACY ARCHITECTS	1/1/07
BENTLEY NOB HILL	SAN FRANCISCO , CA	3,000 sqft	sqft		9/11/07
SAINT IGNATIOUS COLLEGE PREPATORY NEW MUSIC CENTER	SAN FRANCISCO , CA	9,000 sqft	sqft	CSDA ARCHITECTS	9/12/07
SUMMIT PUMP STATION UPGRADE	SAN FRANCISCO , CA	2000 sqft	sqft	CITY AND COUNTY OF SAN FRANCISCO DPW BUREAU OF ENGINEERING	10/16/07
CALIFORNIA ACADEMY OF SCIENCES	SAN FRANCISCO , CA	116,000 sqft	sqft	CHONG PARTNERS ARCHITECTURE	10/24/07
CALIFORNIA ACADEMY OF SCIENCES	SAN FRANCISCO , CA	sqft	27,860 sqft	CHONG PARTNERS ARCHITECTURE	10/24/07
FOUNDRY SQUARE	SAN FRANCISCO , CA	sqft	29,800 sqft	STUDIOS ARCHITECTURE	10/31/07
SOMA GRAND	SAN FRANCISCO , CA	0 sqft	sqft	ARCHITITECTURE INTERNATIONAL	11/26/07
SOMA GRAND	SAN FRANCISCO , CA	sqft	22,500 sqft	ARCHITITECTURE INTERNATIONAL	11/26/07
333 MARKET STREET PLAZA REMEDIATION	SAN FRANCISCO , CA	sqft	17,300 sqft	HOK HELLMUTH OBATA & KASSABAUM INC.	1/21/08
ONE RINCON HILL	SAN FRANCISCO , CA	50,000 sqft	sqft	SOLOMON CORDWELL BUENZ AND ASSOCIATES	1/28/08
SALA BURTON MARITIME MUSEUM	SAN FRANCISCO , CA	1100 sqft	sqft	ARCHITECTURAL RESOURCES GROUP	2/15/08
BETH SHALOM NEW SANCTUARY AND SOCIAL HALL	SAN FRANCISCO , CA	9,500 sqft	sqft	STANLEY SAITOWITZ ARCHITECTS	2/28/08
55 PAGE STREET	SAN FRANCISCO , CA	sqft	1100 sqft	HELLER MANUS ARCHITECTS	3/1/08
BRITANNIA OYSTER POINT II	SOUTH SAN , CA FRANCISCO	sqft	26,200 sqft	DES ARCHITECTS AND ENGINEERS	3/12/08

* No completion date indicates ongoing project

[redacted]

Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
766 HARRISON STREET PROJECT	SAN FRANCISCO , CA	4700 sqft	sqft	THE BAUMEISTER COLLECTIVE	5/27/08
JESSIE SQUARE PLAZA TENANT IMPROVEMENTS	SAN FRANCISCO , CA	sqft	35,000 sqft	HANDEL ARCHITECTS	6/8/08
PALM ROYAL CONDOS	SAN FRANCISCO , CA	sqft	1600 sqft	MCGINNIS CHEN ASSOC.	8/12/08
CATHEDRAL HILL HOA	SAN FRANCISCO , CA	5000 sqft	sqft	ARCHITECTURAL RESOURCES GROUP, INC.	9/15/08
STATE COMPENSATION INSURANCE FUND PLAZA RESTORATION(AKA 1275 MARKET)	SAN FRANCISCO , CA	sqft	9200 sqft	HOK	10/27/08
348 CHURCH STREET CONDOMINIUM ASSOCIATION	SAN FRANCISCO , CA	750 sqft	sqft	WISS JANNEY ELSTNER ASSOCIATES	12/19/08
CENTENNIAL TOWERS	SOUTH SAN , CA FRANCISCO	10,000 sqft	sqft	SKIDMORE OWINGS MERRILL	2/12/09
120 MONTGOMERY RECLAD	SAN FRANCISCO , CA	8000 sqft	sqft	KENDALL/HEATON ASSOCIATES	2/16/09
120 MONTGOMERY - LOBBY	SAN FRANCISCO , CA	sqft	1500 sqft	KENDALL/HEATON ASSOCIATES	2/16/09
U.S. MINT CHILLER SUPPORTS	SAN FRANCISCO , CA	300 sqft	sqft		2/20/09
631 FOLSOM STREET	SAN FRANCISCO , CA	15,600 sqft	sqft	S.G.H.	4/30/09
SF MOMA SCULPTURE GARDENS	SAN FRANCISCO , CA	sqft	10,000 sqft	JENSON ARCHITECTS	5/1/09
201 MISSION STREET FLAGPOLE AREA	SAN FRANCISCO , CA	sqft	1100 sqft		5/8/09
PORTSMOUTH SQUARE	SAN FRANCISCO , CA	sqft	1015 sqft	SIMPSON GUMPERTZ AND HEGER	8/1/09
BERRY STREET CONDOS	SAN FRANCISCO , CA	22000 sqft	sqft	LEDDY MAYTUM STACY ARCHITECTS	8/1/09
ARMSTRONG PLACE	SAN FRANCISCO , CA	sqft	21,200 sqft	DAVID BAKER AND PARTNERS	8/1/09
BRYANT SQUARE	SAN FRANCISCO , CA	sqft	12,350 sqft	SB ARCHITECTS	9/11/09

* No completion date indicates ongoing project

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Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
PRESIDIO TRUST BUILDINGS 681-683	SAN FRANCISCO , CA	sqft	800 sqft	TOM ELIOT FISCH	10/14/09
MERCY HOUSING - 10TH AND MISSION FAMILY HOUSING	SAN FRANCISCO , CA	sqft	8700 sqft	KAPLAN MCLAUGHLIN DIAZ	12/10/09
LAGUNA HONDA HOSPITAL REPLACEMENT PROJECT	SAN FRANCISCO , CA	3,700 sqft	sqft	ANSHEN ALLEN	2/28/10
LAGUNA HONDA HOSPITAL REPLACEMENT PROJECT	SAN FRANCISCO , CA	sqft	2,500 sqft	ANSHEN ALLEN	2/28/10
LAGUNA HONDA HOSPITAL REPLACEMENT PROJECT	SAN FRANCISCO , CA	sqft	2,500 sqft	ANSHEN ALLEN	2/28/10
CESAR CHAVEZ STUDENT CENTER AMPITHEATRE	SAN FRANCISCO , CA	4500 sqft	sqft	ALLANA AND BUICK AND BERS	7/8/10
MERCY HOUSING 9TH AND JESSE SENIOR HOUSING	SAN FRANCISCO , CA	sqft	3,600 sqft	KAPLAN MCLAUGHLIN DIAZ	7/29/10
ARMSTRONG SENIOR HOUSING	SAN FRANCISCO , CA	5000 sqft	sqft	DVID BAKER AND PARTNERS ARCHITECTS	8/1/10
INSTITUTE OF REGENERATION MEDICINE BUILDING, UNIVERSITY OF CALIFORNIA SAN FRANCISCO	SAN FRANCISCO , CA	24,000 sqft	sqft	SMITHGROUP	9/10/10
221 MAIN STREET - 4TH FLOOR ROOF GARDEN	SAN FRANCISCO , CA	7200 sqft	sqft	NICHOLSBOOTH ARCHITECTS	9/13/10
MT. ZION	SAN FRANCISCO , CA	sqft	3400 sqft	KAPLAN MCLAUGHLIN DIAZ	9/30/10
HOFFMAN RESIDENCE	SAN FRANCISCO , CA	sqft	300 sqft	SIMPSON GUMPERTZ AND HEGER	11/1/10
ST. MARY'S CATHOLIC SCHOOL AND CENTER	SAN FRANCISCO , CA	9,350 sqft	sqft	WRNS STUDIO	4/24/11
DREW SCHOOL	SAN FRANCISCO , CA	3900 sqft	sqft	ROMA DESIGN GROUP	5/12/11
PARCEL G HOUSING	SAN FRANCISCO , CA	6800 sqft	sqft	DAVID BAKER AND PARTNERS	7/31/11
ONE MONTGOMERY STREET	SAN FRANCISCO , CA	sqft	5200 sqft	MCGINNIS CHEN ARCHITECTS	8/18/11
3690 21ST STREET PROJECT	SAN FRANCISCO , CA	sqft	200 sqft	BRUCE TOMB	10/26/11

* No completion date indicates ongoing project

[redacted]

Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
1840 WASHINGTON STREET CONDOMINIUMS	SAN FRANCISCO , CA	sqft	1800 sqft	DE QUESADA ARCHITECTS	12/31/11
BETHANY UNITED METHODIST CHURCH	SAN FRANCISCO , CA	900 sqft	sqft	GOLDMAN ARCH.	2/28/12
1345 TURK STREET	SAN FRANCISCO , CA	10,000 sqft	sqft	DAVID BAKER AND PARTNERS	4/5/12
SFPUC HEADQUARTERS BUILDING	SAN FRANCISCO , CA	sqft	7,500 sqft	KAPLAN MCLAUGHLIN DIAZ	6/8/12
CONGREGATION CHIVRA THILLIM	SAN FRANCISCO , CA	sqft	1,000 sqft		9/20/12
GRAND HYATT EAST ENTRY SPILT SLAB WATERPROOFING REPAIR	SAN FRANCISCO , CA	sqft	800 sqft	ALCAL	11/7/12
ARE - 259 EAST GRAND AVENUE	SO. SAN FRANCISCO , CA	2,700 sqft	sqft	DGA	1/7/13
UNIVERSITY OF CALIFORNIA SAN FRANCISCO UCSF MSB BUILDING REROOF	SAN FRANCISCO , CA	22000 sqft	sqft	HARLEY ELLIS DEVEREAUX	2/1/13
1269 LOMBARD	SAN FRANCISCO , CA	520 sqft	sqft	CHARLES F. BLOSZIES ARCHIECTURE	2/20/13
FLORIDA STREET HOA	SAN FRANCISCO , CA	sqft	725 sqft	N/A	5/29/13
THE BATTERY	SAN FRANCISCO , CA	16,000 sqft	sqft	FEE MUNSON EBERT ARCHITECTURE	10/4/13
474 NATOMA	SAN FRANCISCO , CA	sqft	4950 sqft	N/A	11/25/13
RENE CAZANAVE APARTMENTS - TRANSBAY 11 A	SAN FRANCISCO , CA	5500 sqft	sqft	LEDDY MAYTUM STACY ARCHITECTS AND SULLIVAN DESIGN	12/2/13
FOUNDRY SQUARE 3	SAN FRANCISCO , CA	sqft	8500 sqft	STUDIOS ARCHITECTURE	12/13/13
UCSF MEDICAL CENTER OPB	SAN FRANCISCO , CA	300 sqft	sqft	ANSHEN AND ALLEN	12/23/13
401 GROVE	SAN FRANCISCO , CA	sqft	4700 sqft	N/S	1/12/14
333 FREEMONT ST. APARTMENTS	SAN FRANCISCO , CA	sqft	2625 sqft		1/30/14

* No completion date indicates ongoing project

[redacted]

Project Name	Location	Rfg.	Wtrpfg.	Architect	Completion
1844 MARKET STREET APARTMENTS	SAN FRANCISCO , CA	sqft	73700 sqft	CHRISTIANI JOHNSON ARCHITECTS INC.	1/31/14
TENTH AND MARKET RESIDENCES	SAN FRANCISCO , CA	32300 sqft	sqft	HANDEL ARCHITECTS LLC	2/1/14
TENTH AND MARKET RESIDENCES	SAN FRANCISCO , CA	sqft	20,000 sqft	HANDEL ARCHITECTS LLC	2/1/14
650 CALIFORNIA STREET	SAN FRANCISCO , CA	sqft	4,000 sqft	HELLER MANUS ARCHITECTS	2/1/14
NORTHPOINT APARTMENTS	SAN FRANCISCO , CA	sqft	10800 sqft	MB ARCHITECTS	2/28/14
UCSF MEDICAL CENTER HOSPITAL BUILDING	SAN FRANCISCO , CA	59,000 sqft	sqft	ANSHEN AND ALLEN	3/3/14
1645 PACIFIC AVENUE CONDOMINIUMS	SAN FRANCISCO , CA	sqft	4076 sqft	BAR ARCHITECTS	5/30/14

* No completion date indicates ongoing project

APPLICATION: WATERPROOFING
ASSEMBLY: DUAL MEMBRANE

MONOLITHIC MEMBRANE 6125

LONG FORM SPECIFICATION

PART I GENERAL

1.01 SUMMARY

A. This specification serves as a guideline and should be adapted to suit the needs of each individual project by the architect. It is prepared in accordance with the CSI three-part section format and should be included as a separate section under **DIVISION 7 - Thermal and Moisture Protection.** Improvements and other changes to the contents may be made only with the written approval of the architect.

1.02 RELATED SECTIONS (Edit to project requirements)

A. DIVISION 2 - Sitework [Section 02500/02870] - Paving/Site

Furnishings as supplied by American Hydrotech, Inc. **See Division 7 for specific details.**

B. DIVISION 3 - Concrete [Section 03300] - Roof Deck Surface/Substrate

The coordination of this section is necessary to facilitate the successful installation of the waterproofing membrane.

Cast In Place Concrete/Composite Deck

A. Strength/density: minimum 2,500 psi (17,235 kPa) compressive strength
minimum 115 pcf (1842 kg/m^3) density

B. Finish: Wood-float or wood-troweled finish. Steel troweled is not desirable.

C. Concrete Hydration (Cure):

1. Method of Cure: Water cure, wet coverings, paper sheets, plastic sheets or approved liquid curing compound (sodium silicate preferred).
Contact Hydrotech for other alternatives.
2. Duration of Cure/Dry:
   a. Structural Weight Concrete: recommend 28 days, minimum 14 days, prior to application of the membrane.

b. Lightweight Structural Concrete: recommend 60 days, minimum 28 days, prior to application of membrane. Venting of the deck from the underside is recommended to facilitate drying.

B. DIVISION [ ] - Wood blocking and curbing
C. DIVISION [ ] - Insulation
D. DIVISION [ ] - Sheet metal flashing and counterflashing
E. DIVISION [ ] - Caulking and sealants
F. DIVISION [ ] - Plumbing specialties

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM).
B. Canadian Government Specification Board CGSB-37.50-M89, Standard for "Asphalt, Rubberized, Hot Applied, for Roofing and Waterproofing."

1.04 SYSTEM DESCRIPTION

A. Furnish and install a completed waterproofing assembly including surface conditioner, a monolithic, rubberized asphalt/elastomeric sheet membrane, protection course, flashings, extruded polystyrene insulation (if required), drainage course (if required) and pavers (if required). To ensure total system compatibility all products must by purchased from a single-source manufacturer.

1.05 SUBMITTALS

A. Certification from an approved independent testing laboratory experienced in testing this type material, that the material meets the CGSB-37.50-M89 standard for rubberized asphalt membranes, including applicable ASTM procedures. Testing shall be done by Ortech International or other national testing laboratory acceptable to the engineer.

B. Certification showing full time quality control of production facilities and that each batch of material is tested to insure conformance with the manufacturer's published physical properties.

C. Evidence that extruded polystyrene insulation is free from CFC's.

D. Certification showing that all waterproofing components are being supplied and warranted by a single-source manufacturer.

E. The plant manufacturing this type material must have ISO 9001-2000 approval as evidenced by a notarized copy of the official certificate.

1.06 QUALITY ASSURANCE

A. **Refer to Section 1.05 SUBMITTALS.** Include items A., B., C. & D.

B. The Waterproofing Contractor shall demonstrate qualifications to perform the work of this Section by submitting the following documentation:

1. Certification or license by the membrane manufacturer as a locally based, authorized applicator of the product the installer intends to use, for a minimum of five (5) years.

2. List of at least three (3) projects, satisfactorily completed within the past five (5) years, of similar scope and complexity to this project. Previous experience submittal shall correspond to specific membrane system proposed for use by applicator.

C. **Refer to Section 1.04 SYSTEM DESCRIPTION.** Include single-source for all components from the manufacturer.

D. The rubberized asphalt membrane product shall contain an inert clay filler to enable the product to be resistant to acids (fertilizers, building washes and acid rain).

E. Membrane Manufacturer shall have available an in-house technical staff to assist the contractor, when necessary, in application of the products and final inspection of the assembly.

F. Membrane Manufacturer Qualification: Manufacturer shall demonstrate qualifications to supply materials of this section by certifying the following:

1. Membrane Manufacturer must show evidence that the specified rubberized asphalt has been manufactured by the same source for fifteen (15) years and successfully installed on a yearly basis for a minimum of fifteen (15) years on projects of similar scope and complexity.

2. Membrane Manufacturer must not issue warranties for terms longer than they have been manufacturing their hot fluid rubberized asphalt membrane.

G. Pre-Construction Conferences. The manufacturer will meet with the necessary parties at the jobsite to review and discuss project conditions as it relates to the integrity of the waterproofing assembly.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original unopened containers of packaging clearly labeled with manufacturer's name, brand name, instruction for use and all identifying numbers.

B. Materials shall be stored in a neat, safe manner, not to exceed the allowable structural capacity of the storage area.

C. Store materials in a clean, dry area protected from water and direct sunlight.

D. Store all adhesives at temperatures between 60°F (15.5°C) and 80°F (26.6°C). If exposed to lower temperatures, restore materials to 60°F (15.5°C) minimum temperature before using.

1.08 PROJECT CONDITIONS

A. Application of the membrane shall not commence nor proceed during inclement weather. All surfaces to receive the membrane shall be free of water, dew, frost, snow and ice.

B. Application of membrane shall not commence nor proceed when the ambient temperature is below 0°F (-17.7°C).

C. Preparation and application of membrane must be conducted in well ventilated areas.

D. Over its service life, do not expose membrane or accessories to a constant temperature in excess of 180°F (82°C) (i.e., hot pipes and vents or direct steam venting, etc.).

E. Adhesives contain petroleum distillates and are extremely flammable. Do not breathe vapors or use near an open fire. Do not use in confined areas without adequate ventilation. **Consult container or packaging labels and Material Safety Data Sheets (MSDS) for specific safety information.**

F. Do not allow waste products (petroleum, grease, oil, solvents, vegetable or mineral oil, animal fat, etc.) to come in contact with the waterproofing membrane. Any exposure to foreign materials or chemical discharges must be presented to membrane manufacturer for evaluation to determine any impact on the waterproof membrane assembly performance.

G. Concrete Deck/Wall Surface Condition. **IMPORTANT - Refer to 1.02 Related Sections.**

H. Deck/Wall Preparation; **refer to Section 3.02 Preparation.**

I. General contractor shall assure adequate protection during installation of the waterproofing assembly.

1.09 WARRANTY

A. Upon completion of the work, the contractor must supply the owner with a single-source warranty of U.S. origin direct from the manufacturer.

B. Each warranty varies in scope and terms. **Contact Hydrotech for exact warranty terms and conditions to meet the specific project requirements.**

C. Warranties available from the manufacturer:

1. **Material Warranties**; excludes labor.
   Duration: 2-, 5-, 10-year

2. **Watertightness Warranties**; includes labor and material.
   Duration: 5-, 10-year

3. **Thermal Warranties;** includes 80% retention of the original thermal value.
   Duration 5-, 10-year

CONTACT HYDROTECH FOR EXACT WARRANTY TERMS AND CONDITIONS.

PART II PRODUCTS

2.01 GENERAL

A. **Refer to Section 1.04, System Description.** All components must be obtained as a single-source from the membrane manufacturer to ensure total system compatibility and integrity.

Manufacturer: American Hydrotech, Inc.
303 East Ohio Street
Chicago, Illinois 60611-3318
1/800-877-6125 or 1/312-337-4998
FAX: 312-661-0731
Web Site: http://www.hydrotechusa.com

2.02 MATERIALS

A. Membrane

1. Membrane shall be a hot, fluid applied, rubberized asphalt membrane meeting the CGSB-37.50-M89 standard and other pertinent physical properties:

   A. American Hydrotech, Inc., Monolithic Membrane 6125
   B. American Hydrotech, Inc., Monolithic Membrane 6125-EV (25% post consumer recycled content)

PROPERTY	TEST METHOD	TYPICAL RESULT
Flash point	ASTM D-92, CGSB-37.50-M89	475°F (246°C)*
Low Temperature Crack Bridging Capability	CGSB-37.50-M89	No cracking, adhesion loss, or splitting
Water Vapor Permeability	ASTM E-96, PROCEDURE E CGSB-37.50-M89	1.6 ng/Pa(s)M^2
Water Resistance (5 days/50EC)	CGSB-37.50-M89	No delamination, blistering, emulsification, or deterioration
Water Absorption	CGSB-37.50-M89	.22 g weight gain
Toughness	CGSB-37.50-M89	13.0 Joules
Ratio of Toughness to Peak Load	CGSB-37.50-M89	0.069

Viscosity	CGSB-37.50-M89	7.0 seconds
Heat Stability	CGSB-37.50-M89	No change in viscosity, penetration, flow or low temperature flexibility
Low Temperature Flexibility (-25EC)	CGSB-37.50-M89	No delamination, adhesion loss, or cracking
Penetration	ASTM D-1191 CGSB-37.50-M89	75.0 mm @ 77°F (25°C) 121.7 mm @ 122°F (50°C)
Flow	ASTM D-1191 CGSB-7.50-M89	0.0 mm @ 140°F (60°C)
Softening Point	ASTM D-36	180°F (82°C)
Elongation	ASTM D-1191	1000% minimum
Resiliency	ASTM D-3407	40% minimum
Bond to Concrete	ASTM D-3408	Pass @ 0°F (-18°C)
Acid Resistance	ASTM D-896 Procedure 7.1 (N-8)	Pass-50% Nitric Acid 50% Sulfuric Acid
Resistance to Hydrostatic Pressure	ASTM D08.22 Draft 2	100 psi (equals 231 foot of head water)

Resistance to Salt Water	ASTM D-896 similar 20% sodium chloride sodium carbonate calcium chloride	No delamination, blistering, emulsification or deterioration
Resistance to Fertilizer	ASTM D-896 similar undiluted, 15/5/5, nitrogen/phosphorus potash	No delamination, blistering, emulsification or deterioration
Resistance to Animal Waste	3-year exposure	No deterioration
Solids Content		100%-no solvents
Shelf Life		10 years (sealed)
Specific Gravity		1.23 ± .02

*45°F more than the application temperature recommended by the manufacturer.

B. Surface Conditioner
   1. A surface conditioner for concrete surfaces.
      - American Hydrotech, Inc., Surface Conditioner

C. Elastomeric Sheet
   1. 60-mil (1.5 mm) thick, uncured neoprene flashing/reinforcing sheet.
      - American Hydrotech, Inc., Flex Flash UN

D. Flashing/Reinforcing
   1. 60-mil (1.5 mm) thick, uncured neoprene flashing/reinforcing sheet.
      - American Hydrotech, Inc., Flex Flash UN
   2. Spunbonded polyester fabric reinforcing sheet.
      - American Hydrotech, Inc., Flex Flash F

E. Adhesives/Sealant
   1. Contact adhesive to bond flashing together.
      - American Hydrotech, Inc., Splicing Cement
   2. Contact adhesive to bond flashing to an approved substrate.
      - American Hydrotech, Inc., Bonding Adhesive
   3. Sealant to seal flashing seam edge.
      - American Hydrotech, Inc., Lap Sealant

F. Protection Course
   1. A fiberglass reinforced rubberized asphalt sheet.
      - American Hydrotech, Inc., 4.5 mm Permaboard

****Certain project conditions may warrant additional protection. CONTACT Hydrotech's Technical Service Department.****

G. Prefabricated Drainage Course (if required).

1. A composite drainage system consisting of a three-dimensional, crush-proof, drainage core and a filter fabric meeting the following physical properties.
-American Hydrotech, Inc., Hydrodrain 100, 300, 400, 700 or 1,000 series

PROPERTY	TEST METHOD	VALUES
CORE:		
Compressive Strength	ASTM D-1621	100/300/1000 - 30,000 psf (14.66 kg/cm^2) 400 - 15,000 psf (7.32 kg/cm^2) 700 - 18,000 psf (8.79 kg/cm^2)
Thickness	ASTM D-1777	100/1000 - .25 in (.64 cm) 300 - .22 in (.56 cm) 400 - .375 in (.96 cm) 700 - .38 in (1.02 cm)
Flow, Q @ 3600 psf & hydraulic gradient of 1	ASTM D-4716	100 - 8 gpm/ft width (99.34 lpmin/m width) 102 - 6.5 gpm/ft width (80.72 lpmin/m width) 300/1000 - 7 gpm/ft width (72.00 lpmin/m width) 302 - 5.5 gpm ft width (68.30 lpmin/m width) 400 - 15 gpm/ft/width (186.3 lpmin/m width) 700 - 18 gpm/ft width (223.52 lpmin/m width)
FABRIC:		
Flow	ASTM D-4491	100/300/1000 - 205 gpm/ft^2 (8349.62 lpmin/m^2) 400 - 160 gpm/ft^2 (6516.7 lpmin/m^2) 700 - 110 gpm/ft^2 (4887.6 lpmin/m^2)
U.V. Resistance	ASTM D-4355	Fully Stabilized
Apparent Opening Size	CW-02215	30
Grab Tensile	ASTM D-4632	100/300/1000 - 120 lbs. (54.48 kg) 400/700 - 105 lbs. (47.67 kg)

H. Insulation

1. An extruded polystyrene rigid board insulation meeting the following physical properties.

-STYROFOAM7 Brand insulation (TYPE) as manufactured by The Dow Chemical Company, marketed by American Hydrotech, Inc.

a. Insulation shall meet ASTM C-578, Type VI or VII.
b. Minimum compressive strength, ASTM D-1621, 40 or 60 psi (276 or 414 kPa) (variance by type of product).
c. Maximum water absorption by volume per ASTM C-272,0.1%.
d. Water vapor permeance for 1" product per ASTM E-96, 1.0 perm (max.) (63 ng/Pa/s/m^2).
e. Insulation shall have an R value of 5.0°F ft^2 h/Btu/in. (0.88 K m^2/W) of thickness when tested at 75°F (23.9°C) mean temperature in accordance with ASTM C-518.
f. Product shall be free of CFC's.

Product types available: STYROFOAM Brand Plaza Deck; and High Load 100. **CONSULT Hydrotech for recommended product type.**

I. Filter Fabric Sheet (if required)

1. Water permeable polymeric fabric.
- American Hydrotech, Inc., Filter Fabric Sheet

J. Topping Materials (Edit to project requirements)

1. Architectural Finish Pavers
- American Hydrotech, Inc., Terra Pavers-H, meeting the following physical properties:

PROPERTY	TEST METHOD	VALUES
Compressive Strength	ASTM C140	7,000 psi average min.
Flexural Strength	ASTM C293	600 psi average min.
Water Absorption	ASTM C140	Not greater than 5%
Freeze/Thaw	ASTM C67	1% loss/dry weight (50 Cycles)
Centerload	-	Min. 1,750 lbs.

2. Concrete Pour Topping

Dow Chemical Company, manufacturers of STYROFOAM® Brand insulation, recommends the incorporation of an air layer between the insulation and concrete. Hydrotech suggests the use of Hydrodrain AL for this purpose. **CONTACT Hydrotech for specific recommendations.**

K. Supportive Pedestals (Edit to project requirements)

1. Support and Spacing of Pavers.
- Terra-Tabs or
- Terra-Tabs with Terr-Adjust

L. Architectural Precast Site Amenities (Edit to project requirements)

- American Hydrotech, Inc., Site Pieces to match Terra-Pavers-H

PART III EXECUTION

3.01 INSPECTION

A. The waterproofing contractor shall examine all surfaces to receive the waterproofing assembly to verify it is acceptable and proper for the application of the membrane. **Refer to American Hydrotech's Pre-Installation & Application Guidelines.**

B. The waterproofing contractor shall not proceed with the installation of the waterproofing membrane assembly until all deck defects have been corrected.

3.02 PREPARATION

A. All surfaces must be dry, smooth, free of depressions, voids, protrusions, clean and free of unapproved curing compounds, form release agents and other surface contaminants.

1. Cast in-place concrete/Composite deck

   a. Poured in place concrete must be monolithic, smooth, free of voids, spalled areas, laitance, honeycombs, and sharp protrusions.
   b. **Refer to Section 1.02 of this specification, Division 3.**

   For foundation wall waterproofing, contact Hydrotech.

2. Precast concrete decks

   a. Precast units shall be mechanically secured to minimize differential movement and all joints between units shall be grouted.

3. Retrofit/Tear-Off Application

   a. Asphalt, coal tar pitch or other existing membrane must be removed. **CONTACT Hydrotech.**
   b. Deck type acceptable to Hydrotech.

B. Substrate cleaning

1. Thoroughly sweep the substrate, which is to receive the waterproofing membrane.

2. Substrate must also be blown clean using an air compressor to remove any remaining loose debris.

3. Final check to determine if concrete has been properly cleaned is to apply a test patch of Monolithic Membrane 6125 to the surface and check its adhesion.

3.03 INSTALLATION

A. Surface conditioner application (to concrete)

1. Apply the surface conditioner to the concrete using a hand held sprayer evenly at a rate of 300 to 600 SF/gallon (7.4 - 14.7 m^2/L) depending on surface texture. Surface conditioner should "tan" the surface, not blacken it.

2. Allow sufficient time for the surface conditioner to thoroughly dry prior to the membrane application.

B. Membrane preparation

1. The membrane shall be heated in double jacketed, oil bath or air jacketed melter with mechanical agitation, specifically designed for the preparation of a rubberized asphalt membrane.

2. Heat membrane until membrane can be drawn-free flowing at a temperature range between 350ºF (176ºC) and 400°F (204°C).

C. Detailing/Flashing

1. All detailing and flashing shall be done in accordance with the manufacturer's standard guideline details.

2. All detailing and flashing shall be completed before installing the membrane over the field of the substrate.

D. Membrane Application

1. Apply the rubberized asphalt membrane at a rate to provide a continuous, monolithic coat of 90 mil minimum (approximately 2.3 mm), into which is fully embedded a layer of the spunbonded polyester fabric reinforcing sheet, followed by another continuous monolithic coat of membrane at an average thickness of 125 mil (approx. 3.2 mm). Total membrane thickness shall be 215 mils average (approx. 5.5 mm), 180 mils minimum.

Note to specifier: For foundation wall application woven fiberglass, fabric reinforcing sheet shall be used in lieu of spunbonded

Overlap fabric reinforcing sheet 1-2 inches (25.4 mm - 50.8 mm) with membrane between sheets.

2. While the membrane is still warm, unroll the Flex-Flash UN, fully embedding it into the membrane without air pockets. The sheet rubber will require backrolling to avoid embedding polyethylene release sheet into the membrane. Overlap adjoining sheets a minimum of 3 inches (76.2 mm), using membrane in the lap to form a tight seam. The polyethylene release sheet must be removed from the rubber sheet.

3.04 SEPARATION/PROTECTION LAYER INSTALLATION

A. Separation/Protection layer shall be installed as follows:

1. Fully adhere the Permaboard protection board the with another coat of MM 6125 membrane to ensure good bond.

2. Overlap adjoining sheet edges (dry) a minimum of 2"-3" (50.8 mm - 76.2 mm) to insure complete coverage.

3. The protections board will be covered by a layer of Hydrodrain 300. A final concrete protection slab will be installed over the Hydrodrain 300.

3.05 WATER TEST

A. It is strongly recommended that the deck area or portions thereof be water tested by ponding water a minimum depth of 2" (50.8 mm) for a period of 48 hours to check the integrity of the membrane installation. EFVM testing is also accepted for quality assurance testing.

B. **VERIFY** that the structure can support the deadload weight of a watertest before testing.

C. If leaks should occur, the water must be drained completely and the membrane installation repaired.

3.06 DRAINAGE COURSE/INSULATION/FILTER FABRIC SHEET/PAVER PLACEMENT

A. General

1. Contractor shall examine the deck area to be covered with subsequent topping materials in order to insure that all deck areas have received the membrane, the membrane is free of damage, it is properly protected, and all flashing has been properly installed, before placing the insulation.

2. It is recommended that the drainage course (if required), insulation (if required), and other subsequent topping materials be installed as each section is completed.

B. Prefabricated Drainage Course Placement (if required)

1. Install drainage course on horizontal and vertical surfaces in accordance with the manufacturer's recommendations.

2. Layout and position drainage course and allow to lay flat. Cut and fit drainage course to perimeter and penetrations.

3. Bond all geotextile overlap edges to adjacent drainage course geotextile with an acceptable adhesive to insure geotextile integrity.

4. Place subsequent topping materials as soon as possible.

*** If drainage layer is being installed as an AIR LAYER, placement of the drainage course follows installation of insulation (if required). CONTACT Hydrotech.***

C. Insulation Placement (if required)

1. Loose lay in a staggered manner and tightly butt together all insulation boards. The maximum acceptable opening between insulation boards is 3/8" (9.5 mm). Insulation must be installed within 3/4" (19 mm) of all projections, penetrations, etc.

2. When multi-layer insulation applications are involved the bottom layer of insulation must be the thickest layer and must be a minimum of 2" thick (50.8 mm). All layers shall be installed unadhered to each other and all joints in relation to underlying layers staggered.

D. Architectural Finish Paver Placement (if required)

1. Install architectural finish pavers on Terra-Tabs or Terr-Adjust pedestals in accordance with manufacturer's recommendations and architectural layout.

3.07 JOB COMPLETION

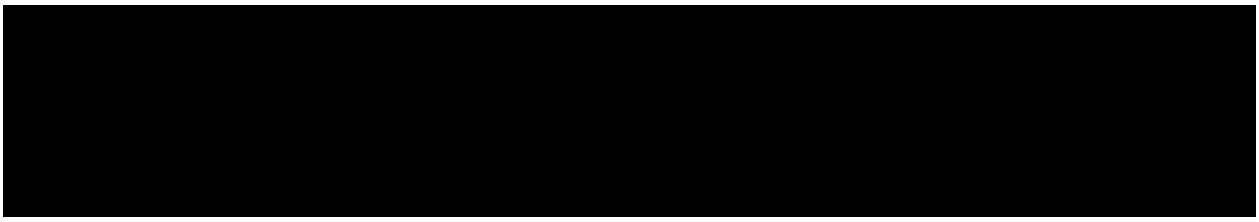
A. Contractor and a representative of the membrane manufacturer shall inspect the waterproofing assembly and notify the contractor of any defects. All defects must be corrected.

B. Clean up all debris and equipment.

END OF SECTION

Monolithic Membrane 6125 advantages

1. MONOLITHIC – Application provides continuous **seamless membrane.**
2. BOND – Complete bond to the substrate eliminates lateral migration of water.
3. THICK – MM 6125 is applied at either 180 or 215 mils. This is 2 – 3 times thicker than other membranes. Thickness advantages:
   a. Fills and seals rough concrete
   b. Seals developing cracks
4. THERMOPLASTIC MEMBRANE means:
   a. Self-sealing of minor construction damage
   b. Sets quickly – ready for other trades immediately after installation.
   c. Tolerates adverse weather immediately after installation.
   d. Easy to patch damage.
   e. Homogeneous day-to-day laps.
   f. Easy to flash-in detailing.
5. ACID RESISTANCE – MM 6125 is highly resistant to fertilizers, building washes and acid rain.
6. PROVEN TRACK RECORD – MM 6125 has been in continuous service since 1960 with the same formulation.
7. SINGLE-SOURCE RESPONSIBILITY – AHI provides complete coverage of all system components.
8. EASE OF INSTALLATION – Foolproof application over wide range of substrate and climate conditions.
9. 100% SOLIDS – Means no curing time or in site chemistry required – no solvents.
10. APPROVED APPLICATOR PROGRAM – Selection of the best contractors in each market area ensures quality control in the field.
11. DETAILING – MM 6125 conforms to all project surface irregularities, filling and sealing all voids and crevices. Reinforcing sheets used to strengthen critical areas.
12. CODE APPROVALS – MM 6125 maintains CGSB-37.50, UL Class A, FM Class 1, Miami-Dade, M.E.A., City of Los Angeles, ISO, BBA and several International Approvals



HYDROTECH®

American Hydrotech, Inc.
303 East Ohio | Chicago, IL 60611
800.877.6125
www.hydrotechusa.com

Dual Membrane Assembly

- **Permaboard (4.5 mm)**
- **Monolithic Membrane 6125® (125 mils)**
- **Flex Flash UN**
- **Monolithic Membrane 6125® (125 mils)**
- **Flex Flash F**
- **Monolithic Membrane 6125® (90 mils)**
- **Surface Conditioner**
- **Substrate**