



Report 29111

**TESTING OF FREEZE THAW PROPERTIES REPORT
ASTM C 330
HESS PUMICE PRODUCTS**

May 14, 2004

Hess Pumice Products
Attn: Mike Hess
P.O. Box 209
Malad City, Idaho 83252

RE: Freeze Thaw Testing Results

Gentlemen:

This letter is to fulfill the freeze thaw requirements of ASTM C 330, The Standard Specification for Lightweight Aggregates for Structural Requirements. The aggregate supplier is required to demonstrate that the aggregate is resistant to freezing and thawing by laboratory testing or proven field experience. Field experience shows that concrete aggregate is resistant to freezing and thawing damage.

Construction Material Engineering Laboratories (CMT) performed inspections and historical reviews of existing structures to verify that the aggregate is resistant to freezing and thawing with field experience. All structures are located in Malad City, Idaho. All areas exposed to weather were inspected. Inspection included foundation walls, window ledges, brick veneer, and retaining walls.

The climate summary from 1948 to 2003 of Malad City provided by the Western Regional Climate Center is attached. An inspection summary is shown below in **Table 1**.

Table 1. Summary of inspections:

Structure Date	Structure Inspected That Contains Pumice Aggregate	Address	Comments
1988	Hess Pumice Office Building: Exposed Walls, Columns, Retaining Walls, and Beams	100 Hess Drive, Malad City	No indications of failures due to freezing and thawing

1972	Residence, Foundations, Exterior Brick Veneer	222 West 700 North, Malad City	No indications of failures due to freezing and thawing
1964	Residence: Foundations	365 North 300 West, Malad City	No indications of failures due to freezing and thawing
1982	Residence: Foundations, Retaining Wall	377 West 700 North, Malad City	No indications of failures due to freezing and thawing
1968	Residence: Foundations, Brick Veneer	200 West 700 North, Malad City	No indications of failures due to freezing and thawing

Available compressive strengths laboratory test results of concrete in structures were reviewed. Compressive strengths ranged from 1,800 to 4,000 psi. The lower strength concrete in the foundation walls did not appear to be detrimental to freeze thaw resistance.

If you have any further questions regarding the project, please call me at (435) 753-6815.

Sincerely,



Todd Touchard, PE
CMT Engineering Laboratories
144 South 600 West
Logan, UT 84321

MALAD CITY, IDAHO

Period of Record General Climate Summary - Temperature

Station:(105559) MALAD CITY															
From Year=1948 To Year=2003															
	Monthly Averages			Daily Extremes				Monthly Extremes				Max. Temp.		Min. Temp.	
	Max.	Min.	Mean	High	Date	Low	Date	Highest Mean	Year	Lowest Mean	Year	>= 90 F	<= 32 F	<= 32 F	<= 0 F
	F	F	F	F	dd/yyyy or yyyymmdd	F	dd/yyyy or yyyymmdd	F	-	F	-	# Days	# Days	# Days	# Days
January	32.6	11.1	21.8	59	31/2003	-33	25/1949	33.6	103	5.6	***	0	13.9	30.1	7.5
February	38.6	15	26.8	68	May-63	-35	May-82	37.6	63	14.6	***	0	6.4	27.1	4.3
March	48.8	23.2	36	75	31/1966	-11	Mar-52	43.2	92	25.4	***	0	1.4	27.5	0.6
April	59.7	30.1	44.9	85	24/1977	7	Feb-76	51.3	92	39.4	75	0	0	19.4	0
May	69.9	37.6	53.8	97	31/2003	18	May-61	60.1	69	48.5	75	0.2	0	6.7	0
June	79.8	43.7	61.7	102	24/1988	24	21/1960	68	61	56.5	98	4.4	0	1.2	0
July	89.6	49.3	69.4	105	13/2002	32	13/1993	72.9	60	60.8	93	17.3	0	0	0
August	88.4	48.2	68.2	104	Feb-00	26	26/1992	72.5	69	63.7	68	15.2	0	0.2	0
September	78.2	39.3	58.7	98	Apr-50	18	29/1985	65.2	90	52.2	65	2.6	0	5.5	0
October	64.7	29.7	47.2	89	Jan-92	8	31/2003	53.5	88	42.2	84	0	0.1	20.8	0
November	46.5	21.9	34.2	73	13/1999	-28	15/1955	40.2	49	28.4	100	0	2.2	26.9	0.6
December	34.7	13.6	24.1	63	Jan-95	-32	30/1990	32	58	13.4	85	0	11.4	29.9	4.3
Annual	61	30.2	45.6	105	20020713	-35	19820205	48.4	94	42	85	39.7	35.3	195.3	17.2
Winter	35.3	13.2	24.3	68	19630205	-35	19820205	32.2	95	14.2	49	0	31.6	87.1	16
Spring	59.5	30.3	44.9	97	20030531	-11	19520303	51.1	92	40.7	64	0.2	1.4	53.6	0.6
Summer	85.9	47	66.4	105	20020713	24	19600621	70.9	61	61.2	93	36.9	0	1.5	0
Fall	63.1	30.3	46.7	98	19500904	-28	19551115	50.3	63	43.1	85	2.6	2.2	53.1	0.6

Table updated on Mar 31, 2004

For monthly and annual means, thresholds, and sums:

Months with 5 or more missing days are not considered

Years with 1 or more missing months are not considered

Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb.
Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug.
Fall = Sep., Oct., and Nov.