

budinger & associates
geotechnical & material engineers

Atwood Hinzman
E. 1819 Springfield
Spokane, WA 99202

July 21, 1993

Project Number M93159

Attention: Dick Atwood

PROJECT: Riverpark Square Parking Garage
Spokane, WA

SUBJECT: Pre-cast Concrete Wall Panels

Gentlemen:

In accordance with your request, we have provided field testing services for the subject structure. Our services were limited to examination and testing of specific structural components, selected at your discretion. The subject structure is a multi-level parking garage in downtown Spokane constructed in 1973. In question was the compressive strength of concrete in pre-cast wall panels, which surround the exterior of the structure at the parking levels.

Tests were conducted to determine in-place compressive strength of the panels using the Windsor Probe test system. The "Windsor Probe" method uses a powder charge to fire and embed a stud into the concrete. The distance that the stud penetrates the concrete, coupled with the hardness of the concrete aggregate using MOH's scale, is indicative of compressive strength.


Tests were conducted on panels randomly selected from each parking level. Panels were visually examined and exhibited some deterioration (surface cracks, spalling), probably due to weathering. Test results indicate compressive strengths ranging from 6,600 psi to 8,000 psi, which we believe to be well within the generally accepted range for the panels in question. Compressive strength results are detailed on the attached "Results of Windsor Probe Testing" form.

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It is a pleasure to be of service to you on this Project. Should you have any questions regarding this Report, please do not hesitate to call.

Respectfully Submitted:
BUDINGER & ASSOCIATES



Scott L. Walters
Mgr., Construction Services

SLW/rb
Addressee - 3

RESULTS OF WINDSOR PROBE TESTING

<u>TEST #</u>	<u>LOCATION</u>	<u>PROBE & POWER LOAD</u>	<u>MOH'S SCALE</u>	<u>PROBE GAUGE HEIGHT (in.)</u>	<u>COMPRESSIVE STRENGTH (PSI)</u>
1	Purple Level (elevator), E. end, 5th panel from S. end	Silver Std	5	2.250	6900
2	Purple Level, S. side, 11th panel W. of SE elevator	Silver Std	5	2.118	6700
3	Purple Level, N. side, 6th panel from NE corner	Silver Std	6	2.225	7200
4	Orange Level, 11th panel, from NE corner	Silver Std	5	2.150	7000
5	Pink/Orange Level, 14th panel from NE corner	Silver Std	5	2.250	7800
6	Orange Level, 15th panel from SE corner	Silver Std	6	2.150	6600
7	Pink Level, 12th panel from SE corner	Silver Std	5	2.264	7800
8	Pink/Green Level, 15th panel from NE corner	Silver Std	6	2.200	7000
9	Green Level, 10th panel from SW corner	Silver Std	4	2.715	7700
10	Green/Yellow Level, 15th panel from NW corner	Silver Std	4	2.200	7900
11	Yellow/Red Level, 16th panel from NW corner	Silver Std	4	2.225	8000
12	Yellow Level, 12th panel from SW corner	Silver Std	6	2.175	6800
13	Red Level, 7th panel from SW corner	Silver Std	5	2.250	7800
14	Blue Level, 4th panel from NW corner	Silver Std	4	2.088	7000
15	Red Level, 15th panel from NE corner	Silver Std	4	2.175	7700