ASCP
AUSTRALIAN SOCIETY FOR CONCRETE PAVEMENTS

25th March 2025

ROLLER COMPACTED CONCRETE PAVEMENTS
UPDATES AND STUDY TOUR

Shane Dunstan

RCC PAVEMENT COUNCIL

WHEN IS CONCRETE, CONCRETE?

ROLLER COMPACTED CONCRETE

FASTEST GROWING
PAVEMENT OPTION

ROLCO
HEAVY DUTY PAVEMENTS

NEW ZEALAND – TIMBER LOGISTICS FACILITY.

ROLCO
HEAVY DUTY PAVEMENTS

ASCP
AUSTRALIAN SOCIETY FOR CONCRETE PAVEMENTS

RECENT RCC PAVEMENT PROJECTS USA

- Georgia USA
- 600mm CTB Subgrade
- 28,000 m2 pavement
- 8“ (200mm) thick single layer
- 34mpa
- One week construction

ANDALE CONSTRUCTION

RECENT RCC PAVEMENT PROJECTS USA

- Georgia USA

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RECENT RCC PAVEMENT PROJECTS USA

- Georgia USA
- 600mm CTB Subgrade
- 2,600 m^3 pavement
- 8“ (200mm) thick single layer
- 34mpa
- 4 days construction

ANDALE CONSTRUCTION

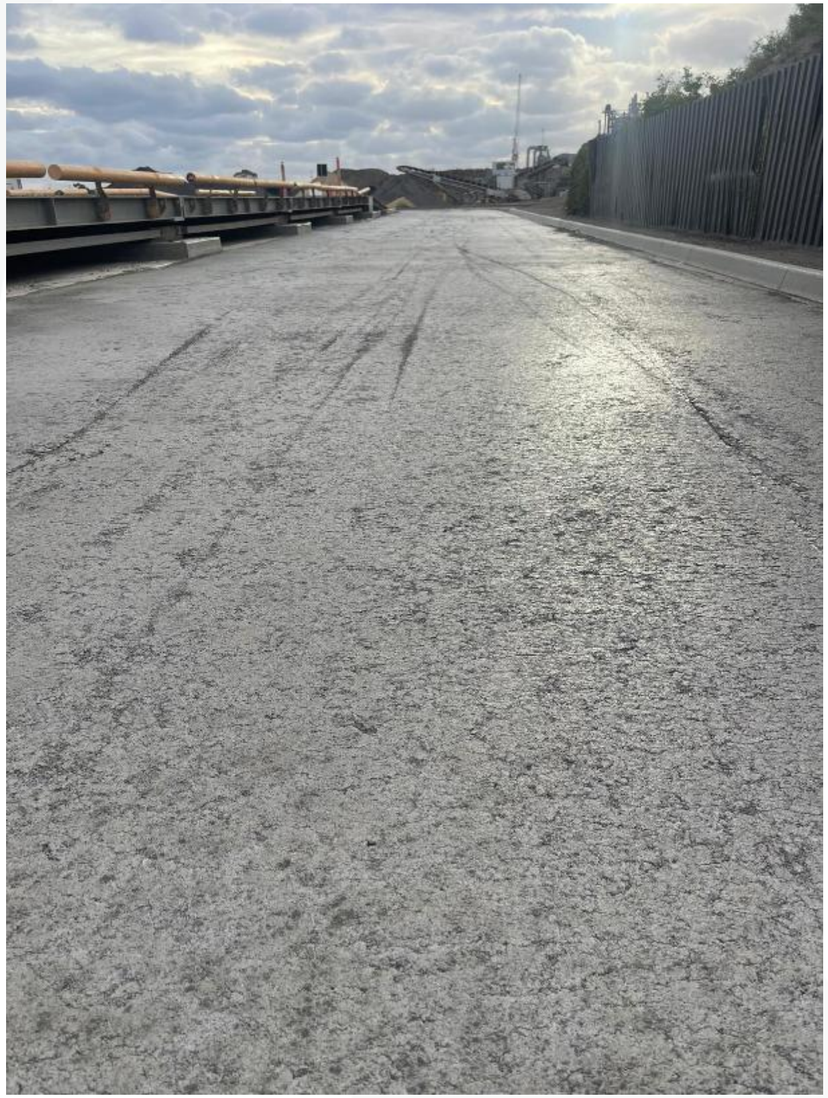
RECENT RCC PAVEMENT TRIAL - VIC

- Upgrade Access Road
- 600mm CTB Subgrade
- 100m x 4m pavement
- 200mm thick single layer
- 28mpa target

RECENT RCC PAVEMENT TRIAL - VIC

- Upgrade Access Road
- 600mm CTB Subgrade
- 100m x 4m pavement
- 200mm thick single layer

- Cores
  - 20mpa at 7days average
  - 22 – 27.5 Mpa 28 days
- 7% -8.8% moisture (target 8%)
- 18% cement

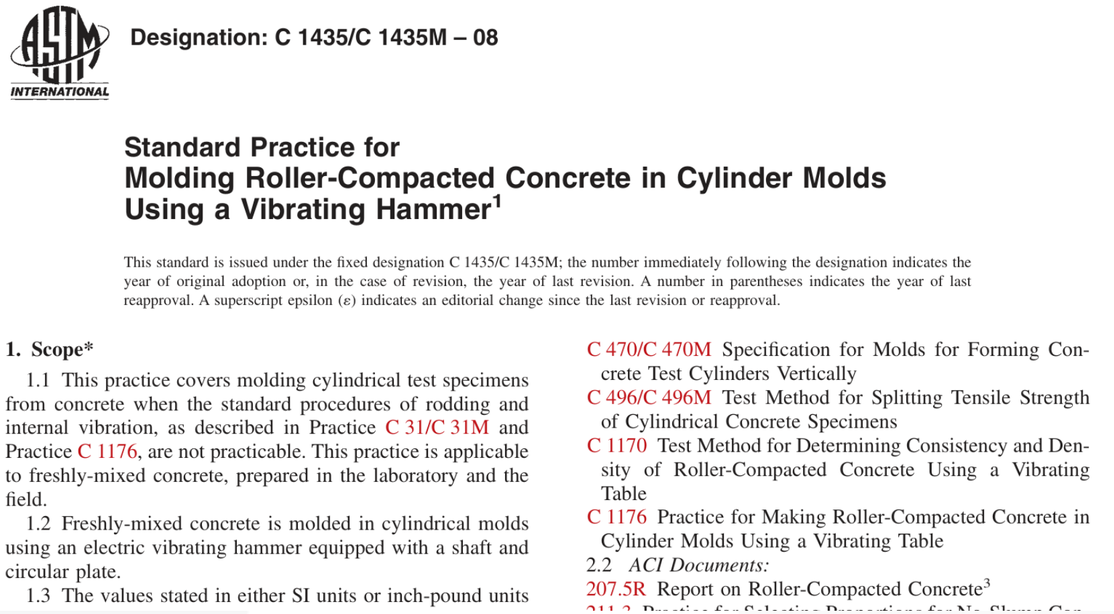


RECENT RCC PAVEMENT TRIAL - VIC

- Lessons learnt
- Testing methods and equipment
  - **UCS (Unconfined Compressive Strength) – AS 5101.4 – <u>Remoulded in lab :</u>** In this test method smaller moulds used height 115 cm diameter 105 cm – 5 layers , modified compaction
  - <u>28 Days strength</u>

    Sample 1 – **33.6 Mpa**

    Sample 2 – **35.6 MPa**



Designation: C 1435/C 1435M – 08

Standard Practice for Molding Roller-Compacted Concrete in Cylinder Molds Using a Vibrating Hammer[1]

This standard is issued under the fixed designation C 1435/C 1435M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This practice covers molding cylindrical test specimens from concrete when the standard procedures of rodding and internal vibration, as described in Practice C 31/C 31M and Practice C 1176, are not practicable. This practice is applicable to freshly-mixed concrete, prepared in the laboratory and the field.

1.2 Freshly-mixed concrete is molded in cylindrical molds using an electric vibrating hammer equipped with a shaft and circular plate.

1.3 The values stated in either SI units or inch-pound units

C 470/C 470M Specification for Molds for Forming Concrete Test Cylinders Vertically
C 496/C 496M Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
C 1170 Test Method for Determining Consistency and Density of Roller-Compacted Concrete Using a Vibrating Table
C 1176 Practice for Making Roller-Compacted Concrete in Cylinder Molds Using a Vibrating Table

2.2 *ACI Documents:*
207.5R Report on Roller-Compacted Concrete[3]

- Paver
- Testing methods and equipment
- Construction
- RCC Production

RECENT RCC PAVEMENT TRIAL - VIC

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RECENT RCC PA

- Lessons learnt
- Testing methods and
  - **UCS (Unconfined Compr**
    – <u>Remoulded in lab :</u> In th
    moulds used height 115 c
    modified compaction
  - <u>28 Days strength</u>

    Sample 1 – **33.6 Mpa**

    Sample 2 – **35.6 MPa**
- Paver
- Testing methods and
- Construction
- RCC Production

RECENT RCC PAVEMENT TRIAL - VIC

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- Te
- Co
- RC

RECENT RCC PAVEMENT TRIAL - VIC

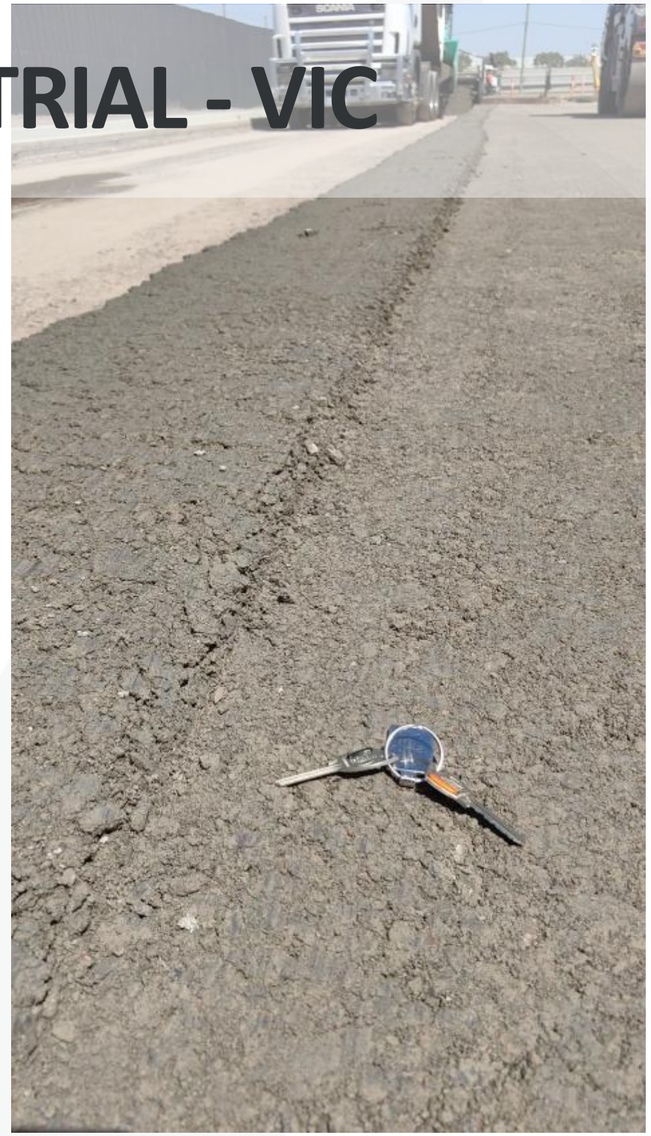
- Lessons learnt
- Testing methods and equipment
- Paver
  - Paved density of 75-85%
  - (Target 95%)
- Testing methods and equipment
- Construction
- RCC Production

RECENT RCC PAVEMENT TRIAL - VIC

- Lessons learnt
- Testing methods and equipment
- Paver
- Testing methods and equipment
  - AS 1289.1.2.1 6.4 (a) - Sampling from layers in pavement 
  - AS 5101.4 height 115 cm diameter 105 cm – 5 layers , modified compaction more successful
- Construction
- RCC Production

RECENT RCC PAVEMENT TRIAL - VIC

- Lessons learnt
- Testing methods and equipment
- Paver
- Testing methods and equipment
- Construction
  - Rolling
- RCC Production



RECENT RCC PAVEMENT TRIAL - VIC

- Lessons learnt
- Testing methods and equipment
- Paver
- Testing methods and equipment
- Construction
  - Rolling
- RCC Production

RECENT RCC PAVEMENT TRIAL - VIC

- Lessons learnt
- Testing methods and equipment
- Paver
- Testing methods and equipment
- Construction
  - Warm Jointing method
  - Curing
  - Surface Finishing
  - Cutting
- RCC Production

RECENT RCC PAVEMENT TRIAL - VIC

- Lessons learnt
- Testing methods and equipment
- Paver
- Testing methods and equipment
- Construction
- RCC Production
  - 80 tph
  - Segregation
  - Variability

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- Lessons learnt
- Testing methods and equipr
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- RCC Production
  - 80 tph
  - Segregation
  - Variability

RECENT RCC PAVEMENT TRIAL - VIC

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- How can we do better?
  - Familiarisation
  - Training
  - Right Equipment

  - Learn from the experts…

RCC STUDY TOUR

RCC STUDY TOUR

May 27th – 28th

Texas

- Houston with Rollcon and Liberty
- Active construction
  - Residential
  - Dual Lift heavy industrial
- Operational pavements
  - Residential
  - Industrial
- Workshop Session with Rollcon
- Dinner with Rollcon, Cemex and other RCC PC members

May 29th – 30th

Texas

- Laredo with Andale
- Active construction
  - Industrial
- Operational pavements
  - Commerial
  - Industrial
- Workshop Session with Andale
- Dinner with Andale

RCC STUDY TOUR

Flights

Travel to USA

Arrive Houston 26th March

Houston TX to Laredo TX 29th May
United Airlines 4904 @ 12:05-13:32

Laredo TX Tour finishes 30th May
for 17:00 departing flights return home…

Accommodation

May 26th – 29th

Houston TX

Hilton Houston Post Oak

2001 Post Oak Blvd, Houston, TX 77056

May 29th – 30th

Laredo TX

Embassy Suites by Hilton Laredo

110 C. del Norte, Laredo, TX 78041

All flights economy ~Au$2,000 All accommodation ~ $1,000 Ground Transport Budget $500 Meals Budget $500 Total Budget $4,000

RCC STUDY TOUR

Optional Additional Day

31st May (Saturday)
Mobile AL Port of Mobile

Dual Lift RCC – Multiple sections operational pavement constructed 4 – 14 yrs ago to view

Dual Lift under Construction by Peltz Co

Tour 8am to 3pm

Welcome for dinner with Peltz Co at 7pm 31st May

Accommodation

May 30th

Mobile AL

Holiday Inn Mobile-Dwtn/Hist. District

301 Government Street, Mobile, Alabama

Flight 30th May

UA 4374 17:25 - 18:55 LRD-IAH

UA 6224 20:05 – 21:41 IAH-MOB

Additional Budget flights economy ~Au$250 All accommodation ~ $250 Ground Transport Budget $100 Meals Budget $100 Additional Budget $700

RCC STUDY TOUR

EOI through ASCP Website

Booking for tour

- Arrange own flights and hotels
- Deposit for Ground Transportation

Alternatively

- Group booking flights and accommodation

For more information contact:

Shane Dunstan
Shane-d@aran.co
0414485261

RCC STUDY TOUR

RCC

FASTEST GROWING

PAVEMENT OPTION

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