2016 PTI Convention
Long Beach, California

Post-Tensioning Evaluation and Rehabilitation

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Innovative Evaluation of Paper-Wrapped Post-Tensioning

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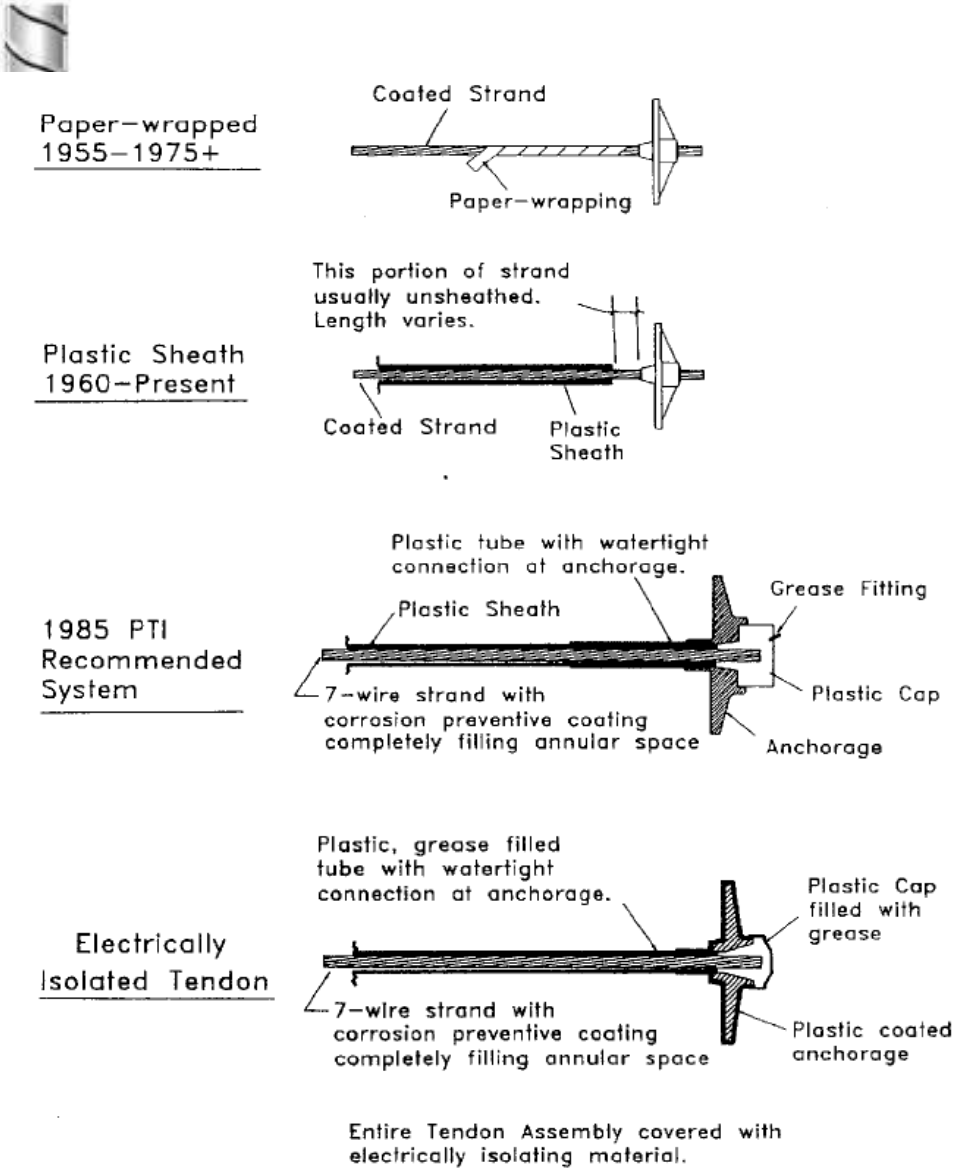
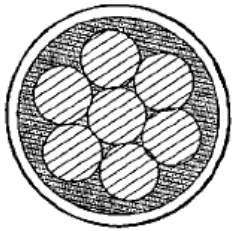
Presentation Goals:

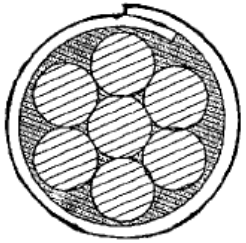
- Understand the components of paper-wrapped tendons
- Present Eealuation techniques
- Evaluation case study





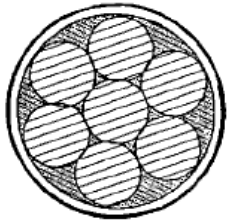
PUSH-THROUGH PREFORMED TUBE

STRAND PUSHED THROUGH AS GREASE IS APPLIED.



HEAT-SEALED

FORMED FROM FLAT STRIP AS GREASE IS APPLIED.

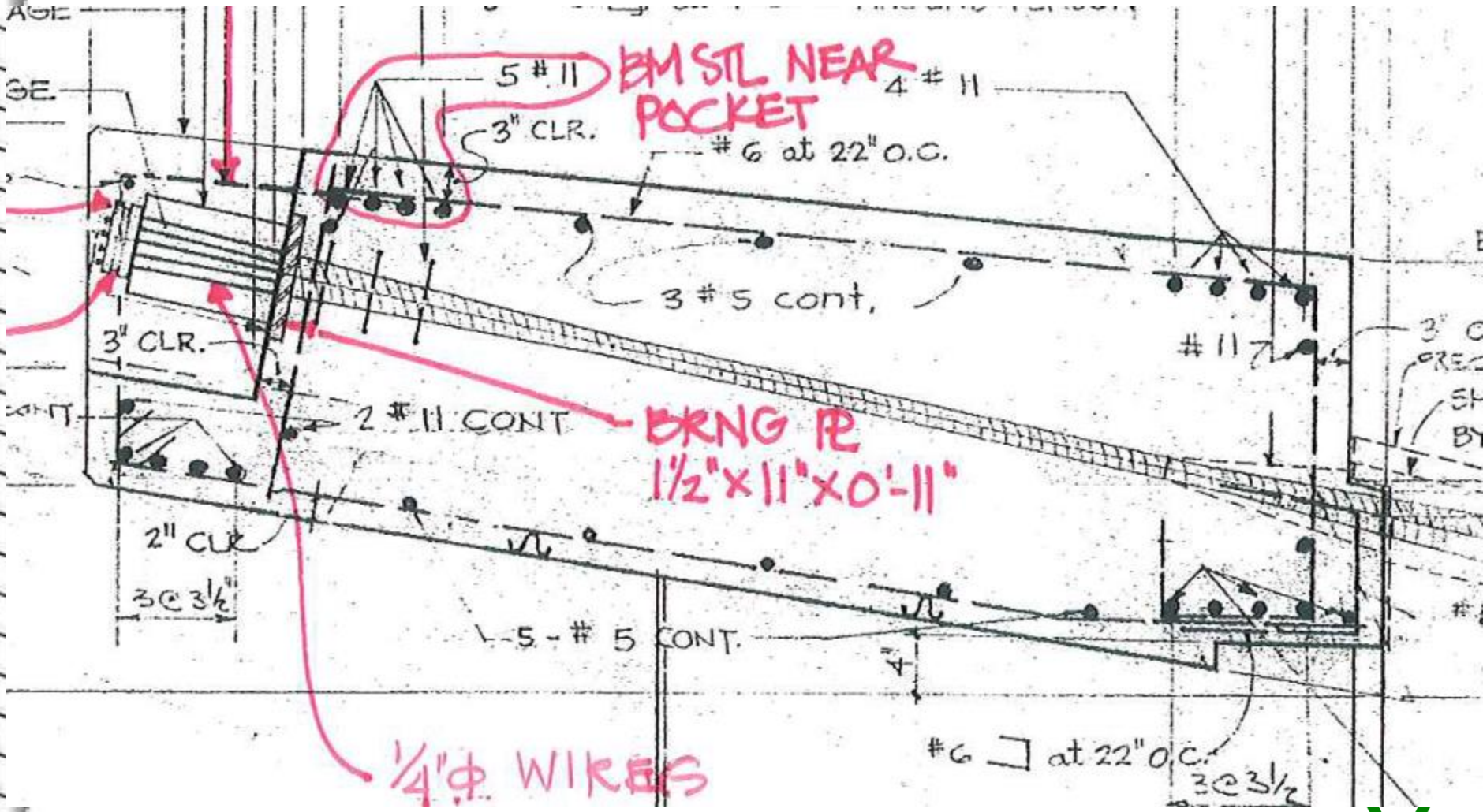


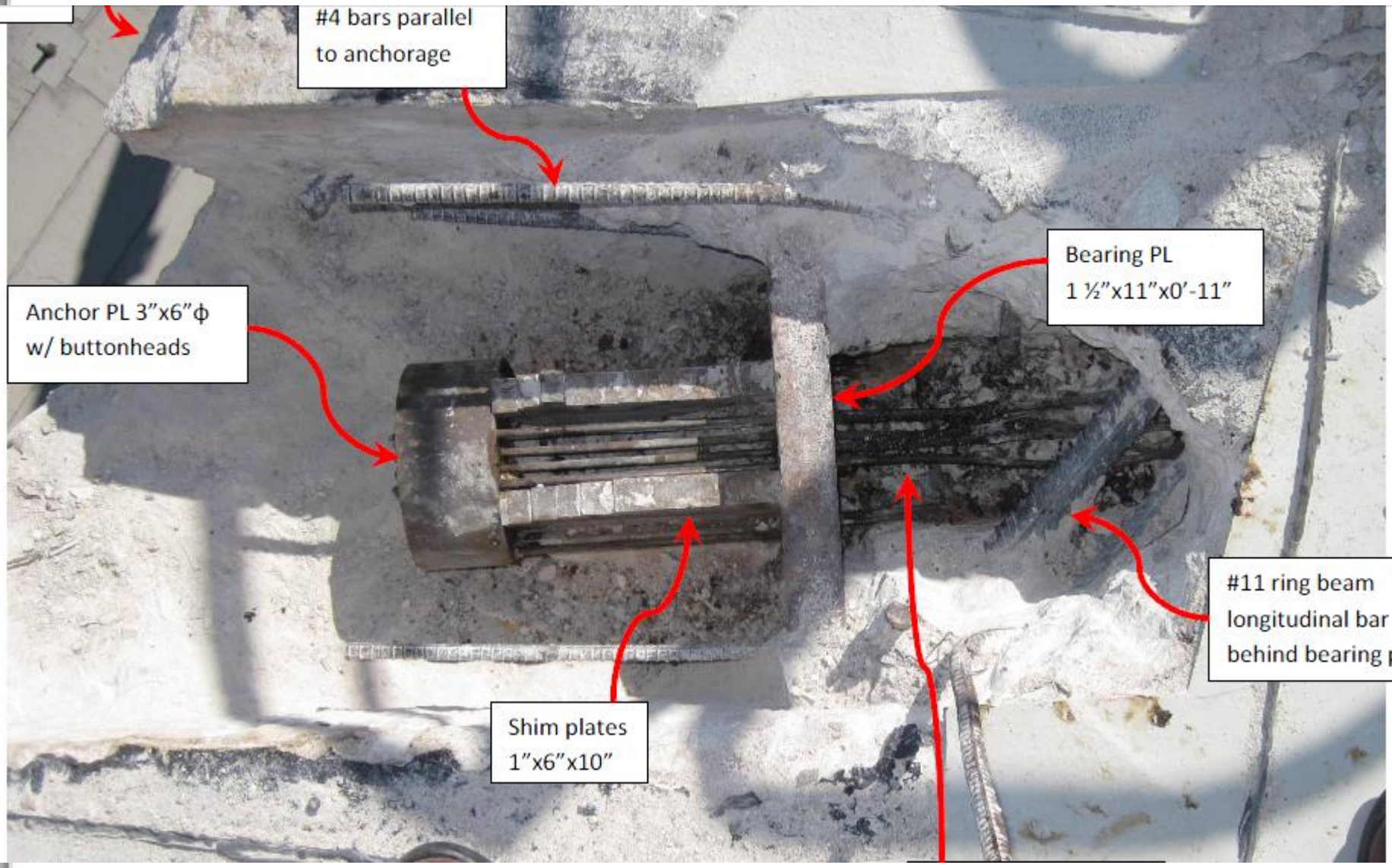
EXTRUDED

FORMED BY EXTRUDING OVER STRAND AS GREASE IS APPLIED.

Fig. 3.2—Evolution of corrosion protection for unbonded single strand tendons for buildings (reprinted from Reference 2).

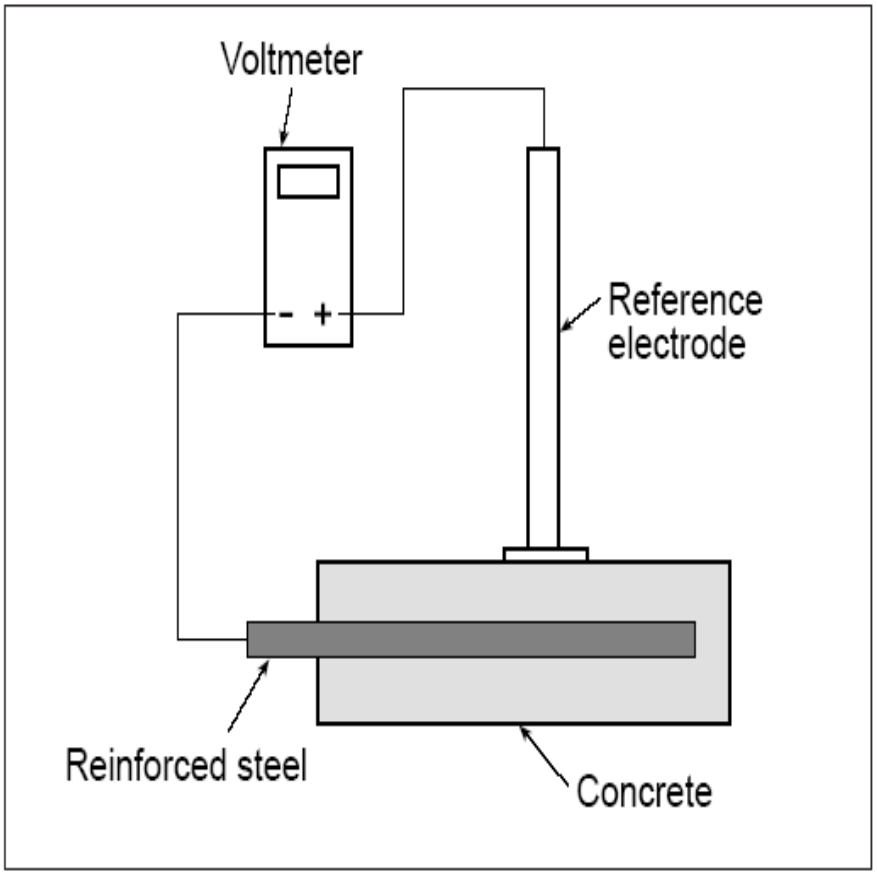
Paper-wrapped Button-headed system




#4 bars parallel
to anchorage
Bearing PL
1 ½"x11"x0'-11"
Anchor PL 3"x6"ϕ
w/ buttonheads
#11 ring beam
longitudinal bar
behind bearing pl
Shim plates
1"x6"x10"

Test Pit and Visual Inspection

Half-Cell Corrosion Potential



Paper Wrapped Tendon

Paper Sheath is conductive like concrete

Continuous with Rebars

Galvanic protection is applicable along tendon

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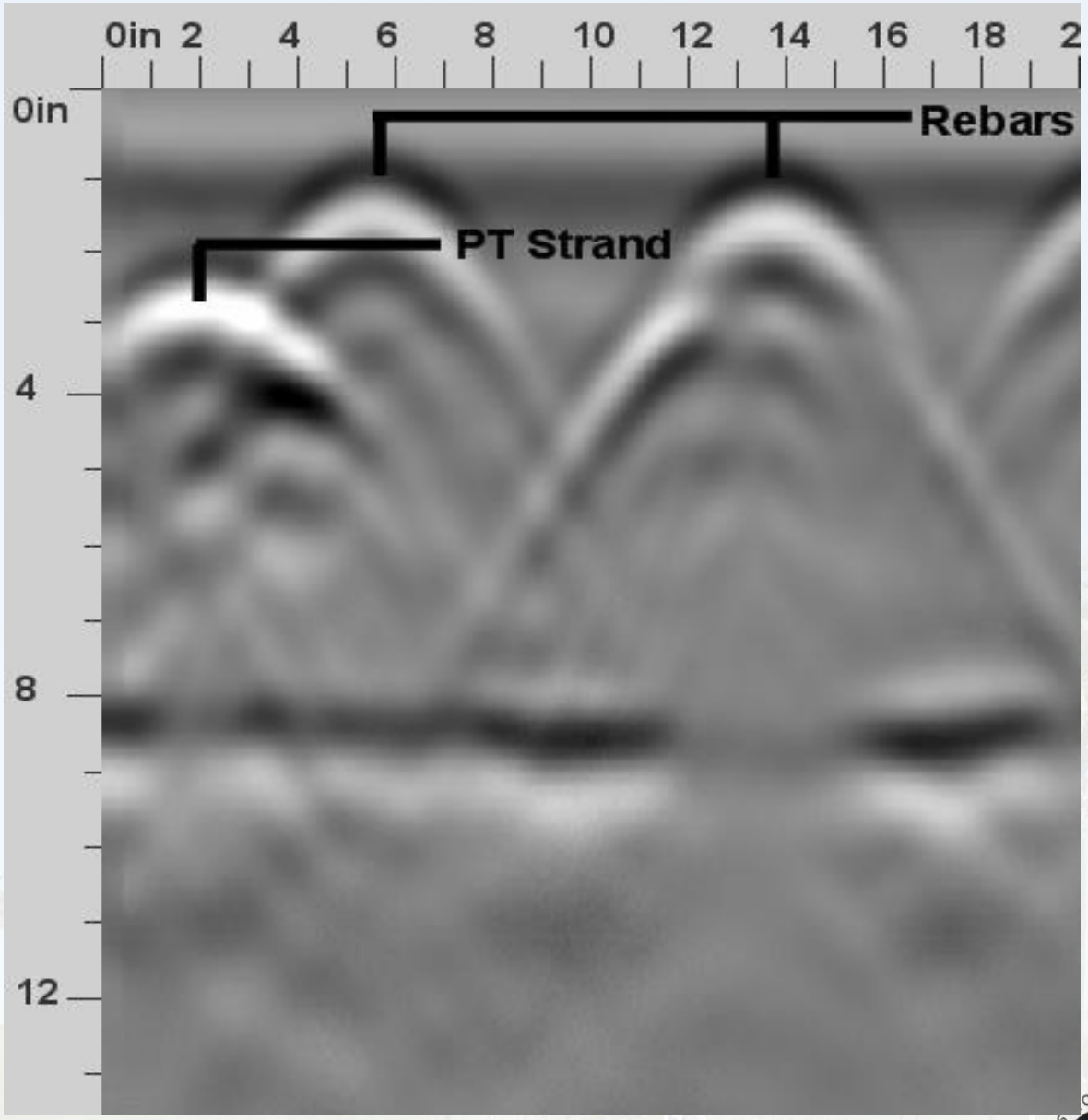
Tension Test

Case Study



#3 and #4 pits, good rebar and tendons

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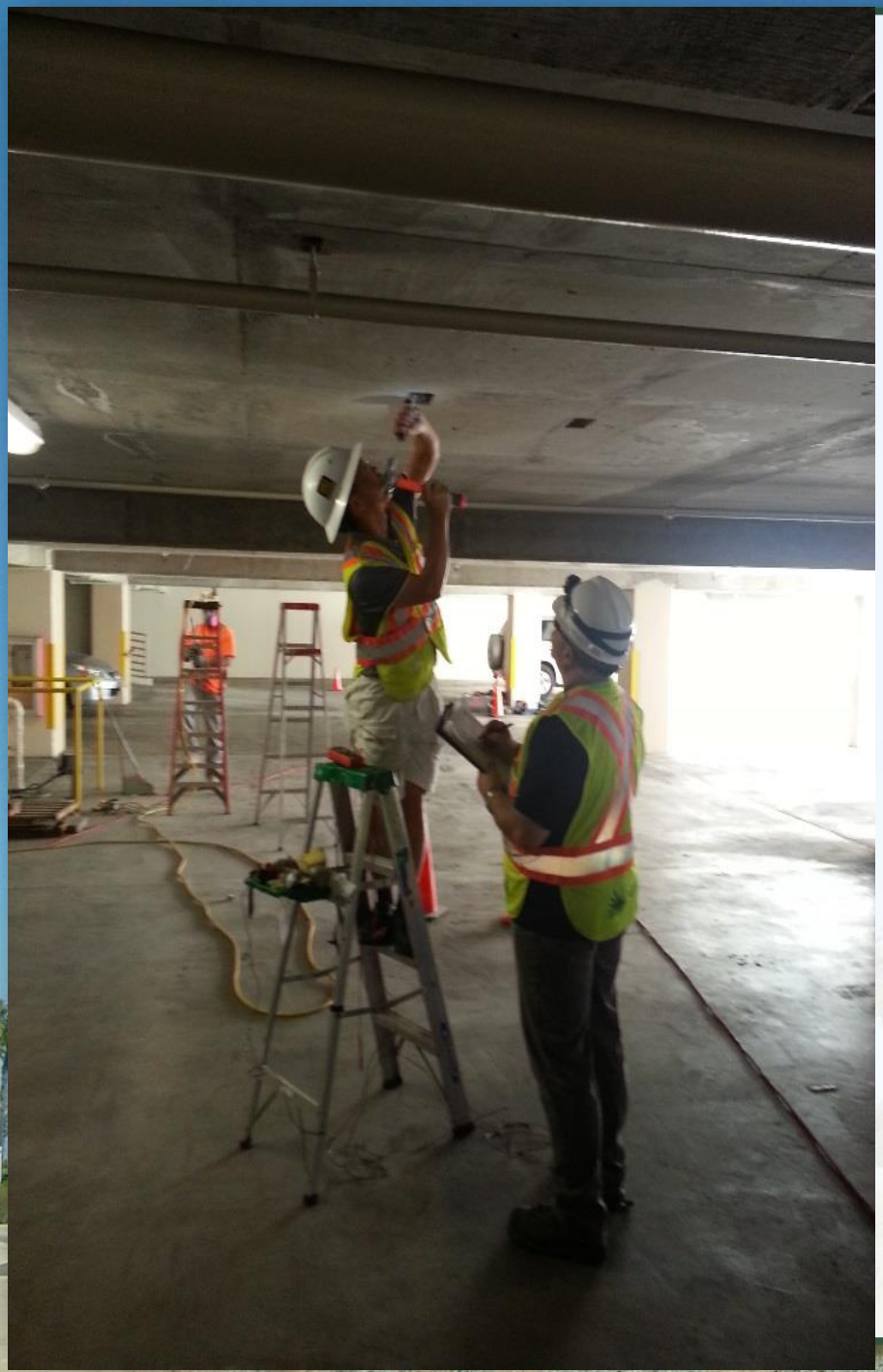

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Air Test

Air communications present on good paper-wrapped tendons, but not the corroded ones

Conductivity

Conductivity is present on all the Tendons when tested with XP4 anodes the current ranges from 30 to 240 micro amperes

Polarization

Instant potential shift ranges from 30 to 700mV when tested with XP4 anodes

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Summary

- Visual inspection
- Test pit
- Corrosion potential
- Continuity
- Conductivity
- Polarization
- Tension tests

Thank You!

Questions ?

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Title of Presentation

Author(s) / Presenter(s)

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