

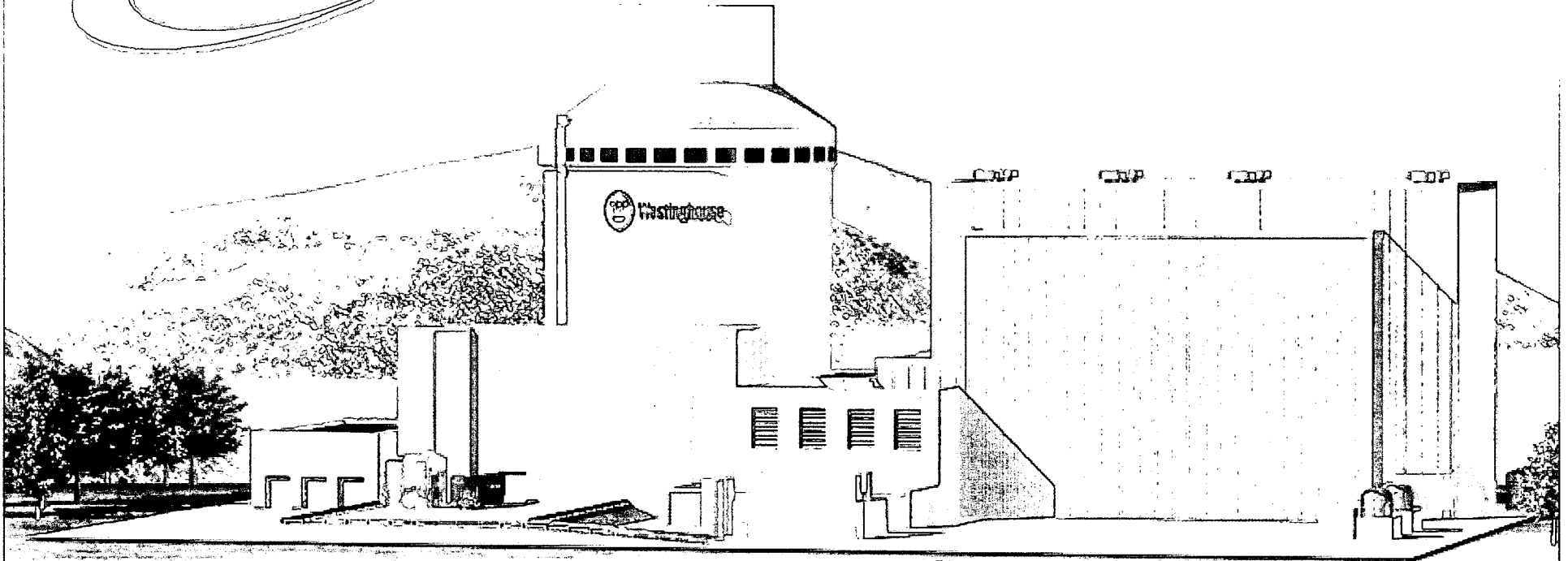
ENCLOSURE 4

Westinghouse Non-Proprietary Class 3

AP1000 Shield Building Update – (Non-Proprietary)

# AP1000

# Shield Building Update



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# **Topics of Discussion**

a, b, c

[Empty rounded rectangular box for discussion topics]

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a, b, c

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# Overview

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a, b, c



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# ***Westinghouse Interpretation of NRC Letter***

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a, b, c

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# Shield Building Organizational Chart



a, b, c



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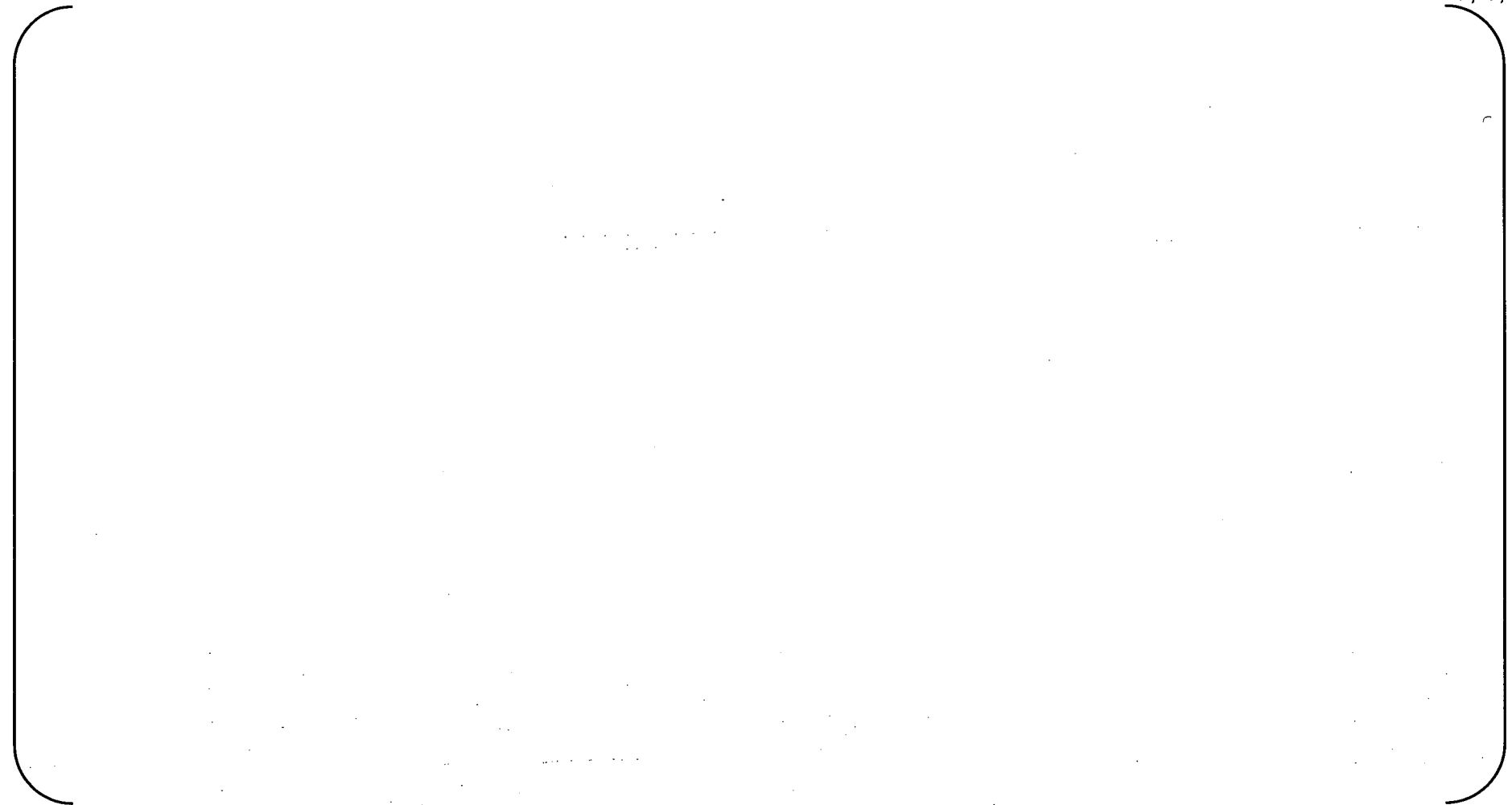
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# ***Westinghouse Approach to License the Shield Building***



a, b, c



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# ***Westinghouse Approach to License the Shield Building (cont'd)***



a, b, c



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# ***Westinghouse Approach to License the Shield Building (cont'd)***



a, b, c



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# Steel Lined Concrete



a, b, c



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# Shield Building



a, b, c



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# Westinghouse Design Process



a, b, c

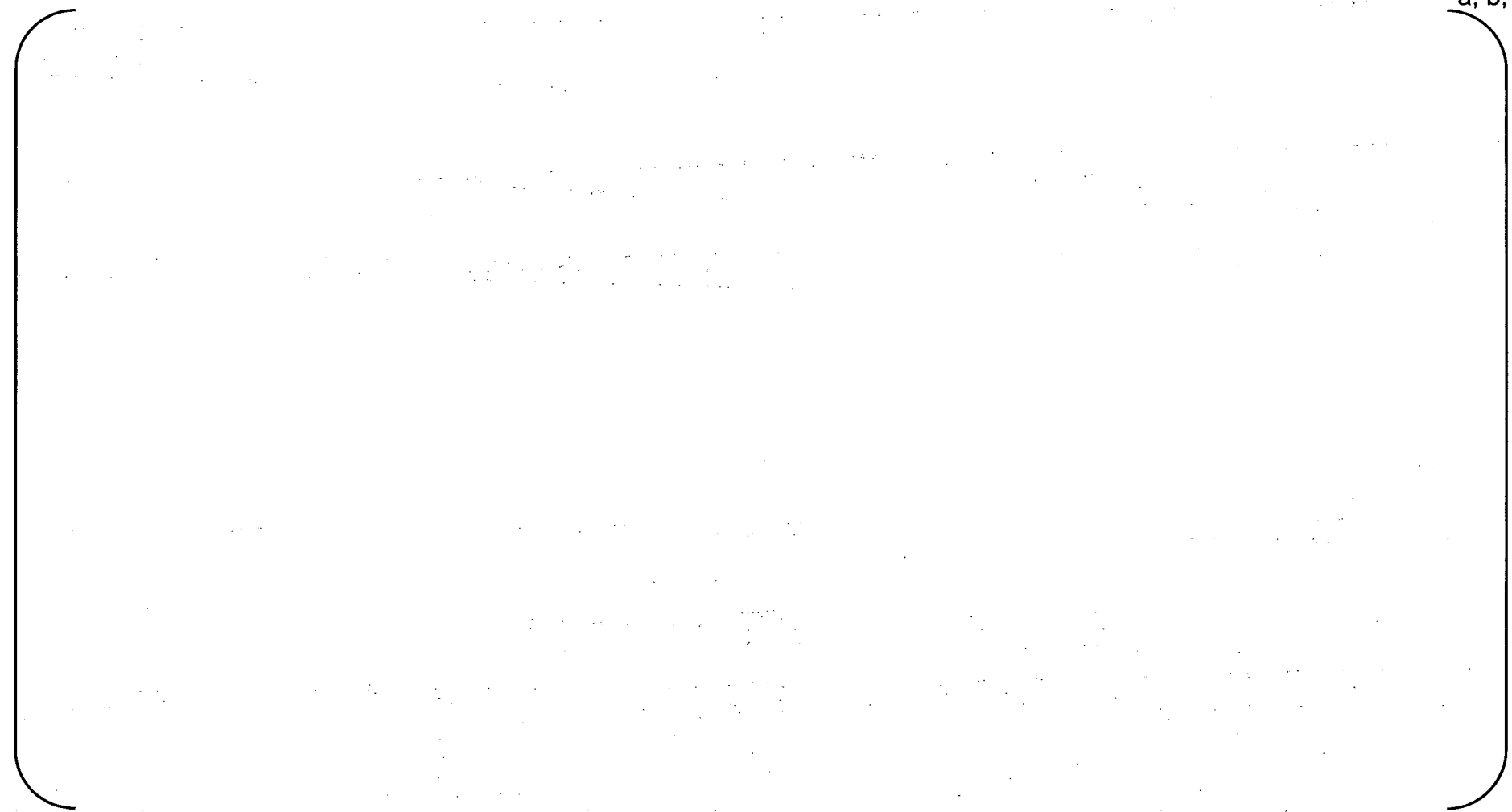


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a, b, c



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# Ring Girder and Air-inlet Region

a, b, c



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# Ring Girder and Air-inlet Region



a, b, c



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# ***Buckling, Creep & Shrinkage Effects***



a, b, c



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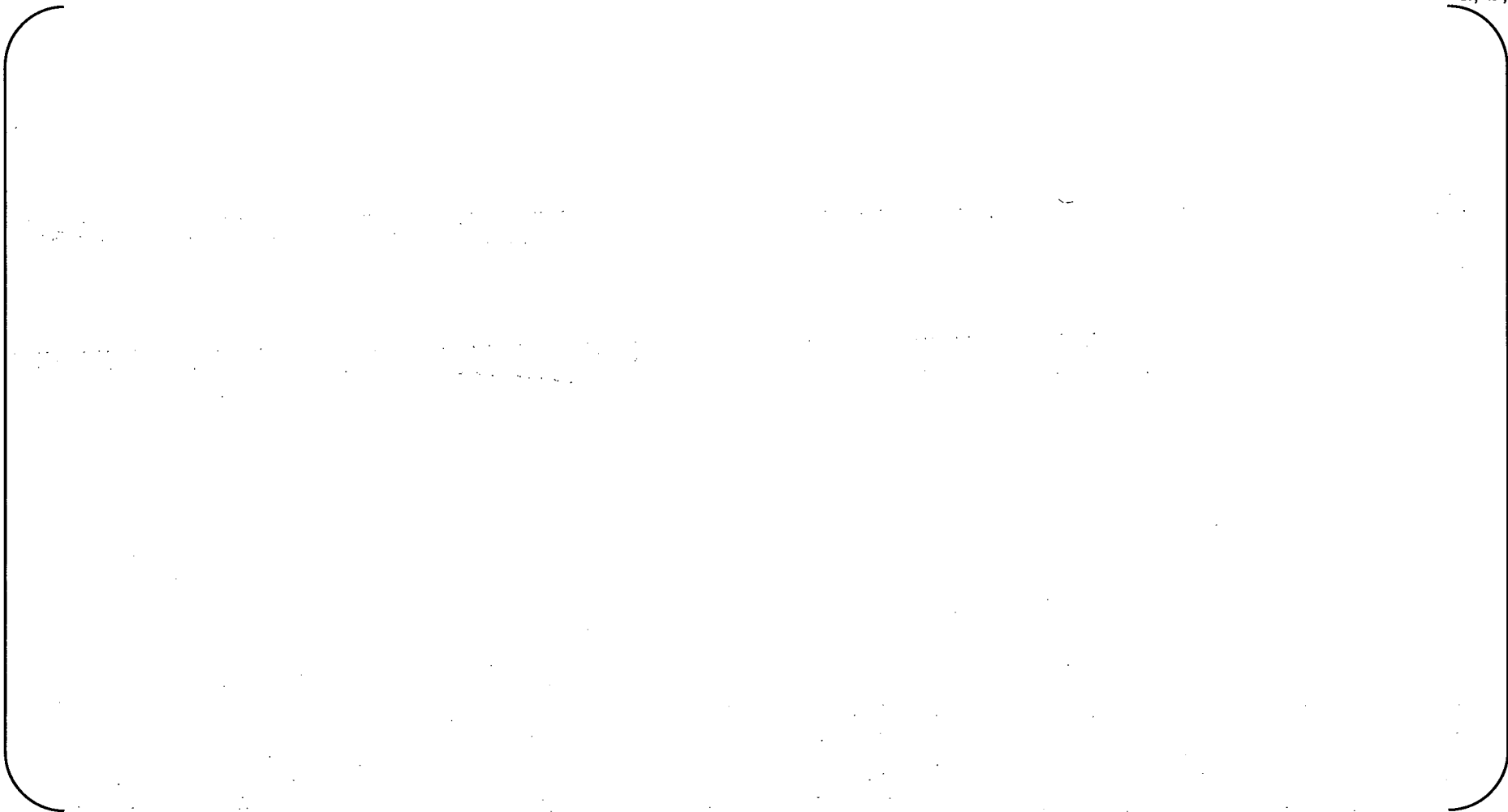
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# Daily and Seasonal Thermal Cycling

a, b, c



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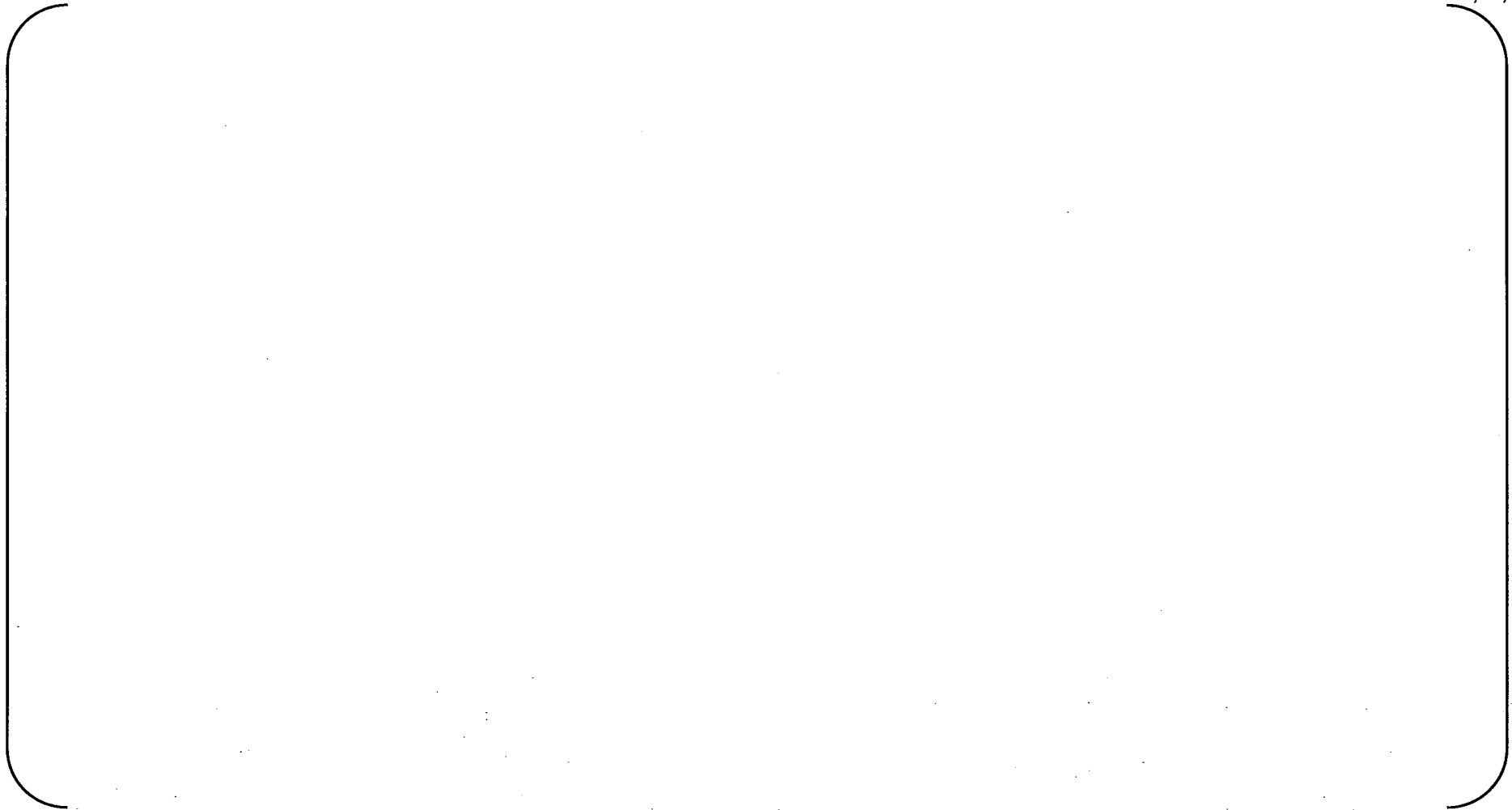
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# Integration



a, b, c



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# SC/RC Connection to Basemat

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a, b, c



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# ***Corner Connection Detail***

a, b, c



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# ***Corner Connection Detail***

a, b, c



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# ***Corner Connection Detail***

a, b, c



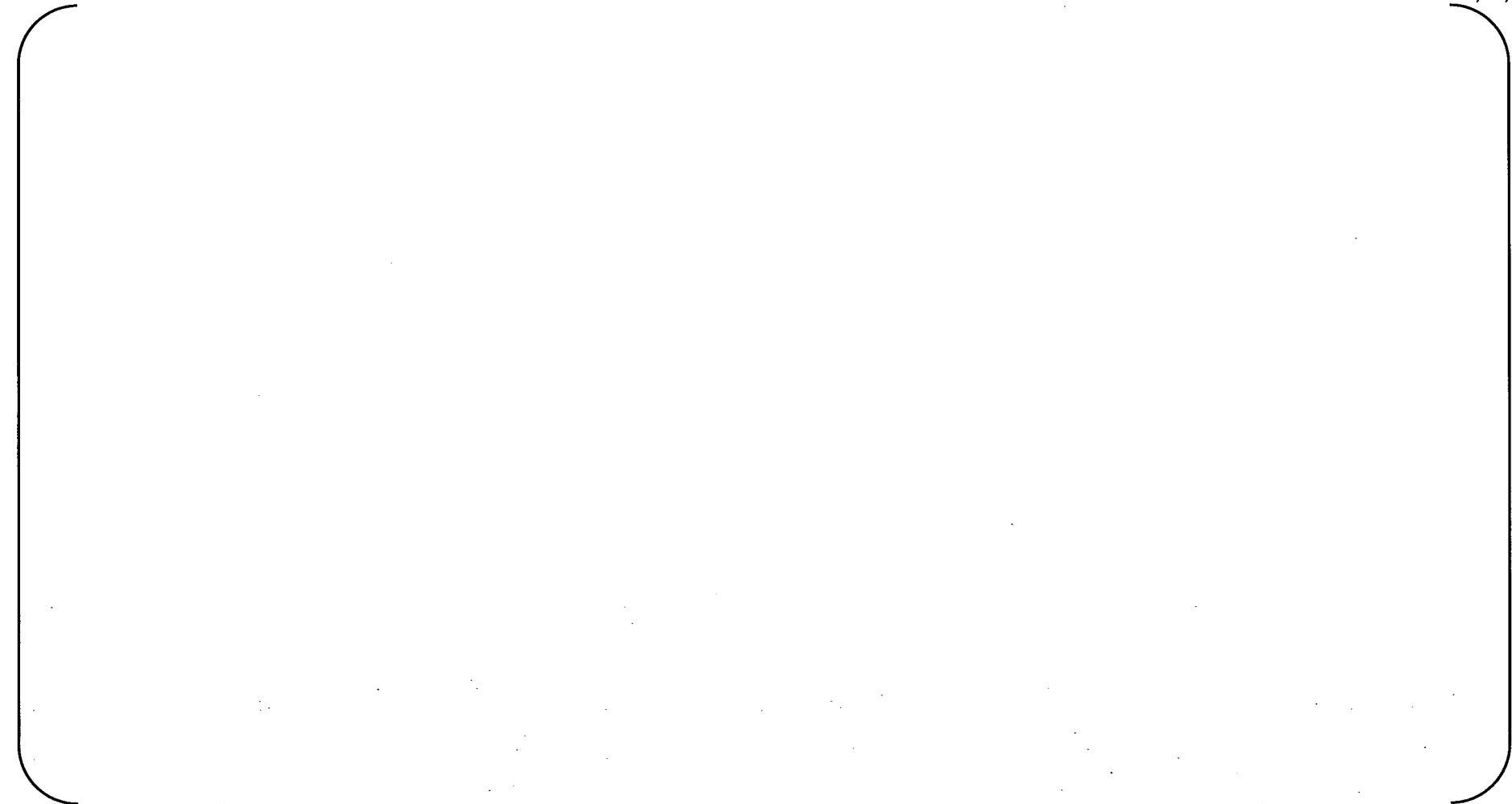
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# ***Reinforcement Details Below Grade***

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a, b, c



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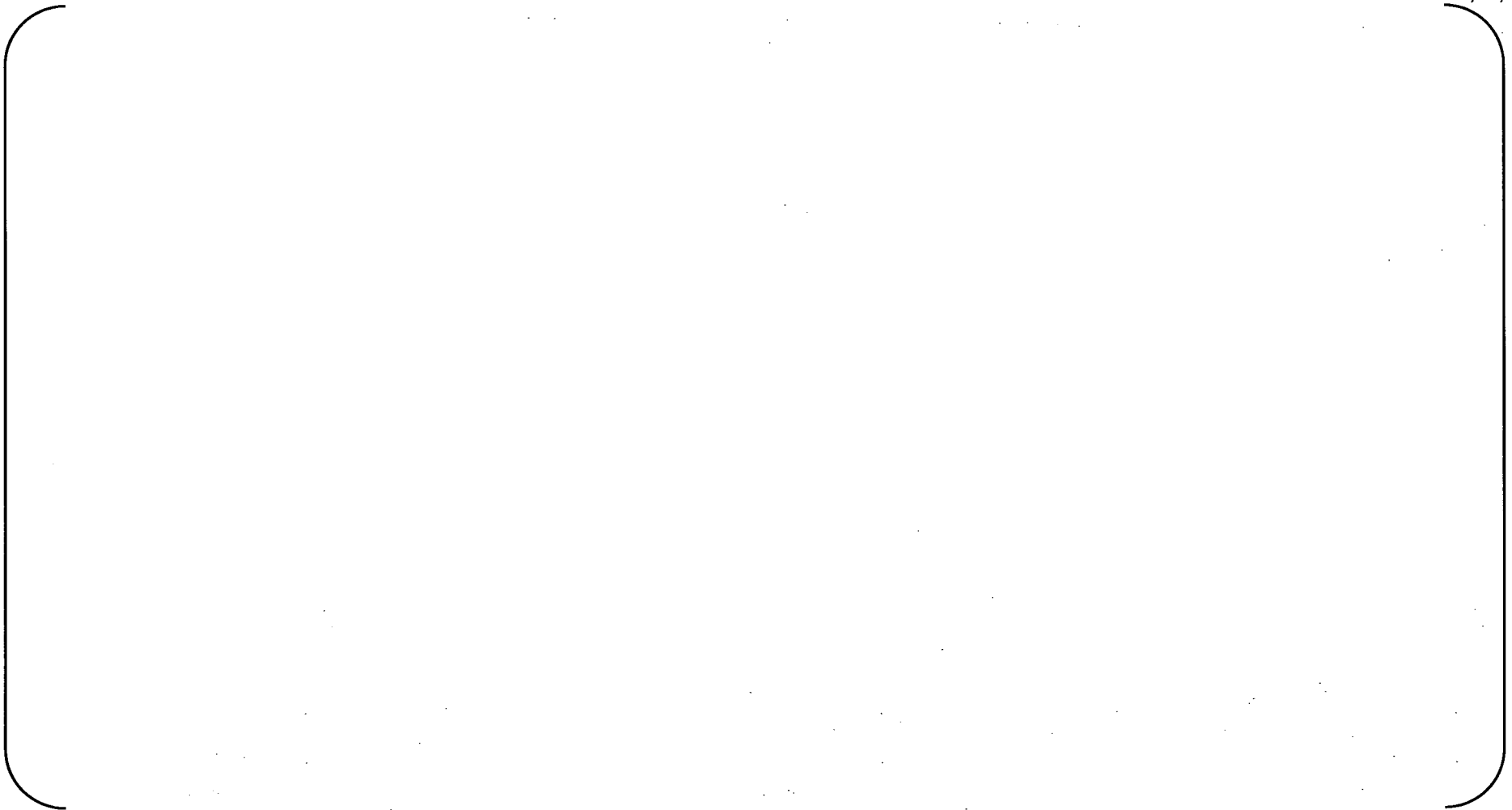
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# ***Rebar Details below 100'***

a, b, c



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a, b, c



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# Shield Building Cylindrical Wall - Design Modifications

**AP1000**

a, b, c

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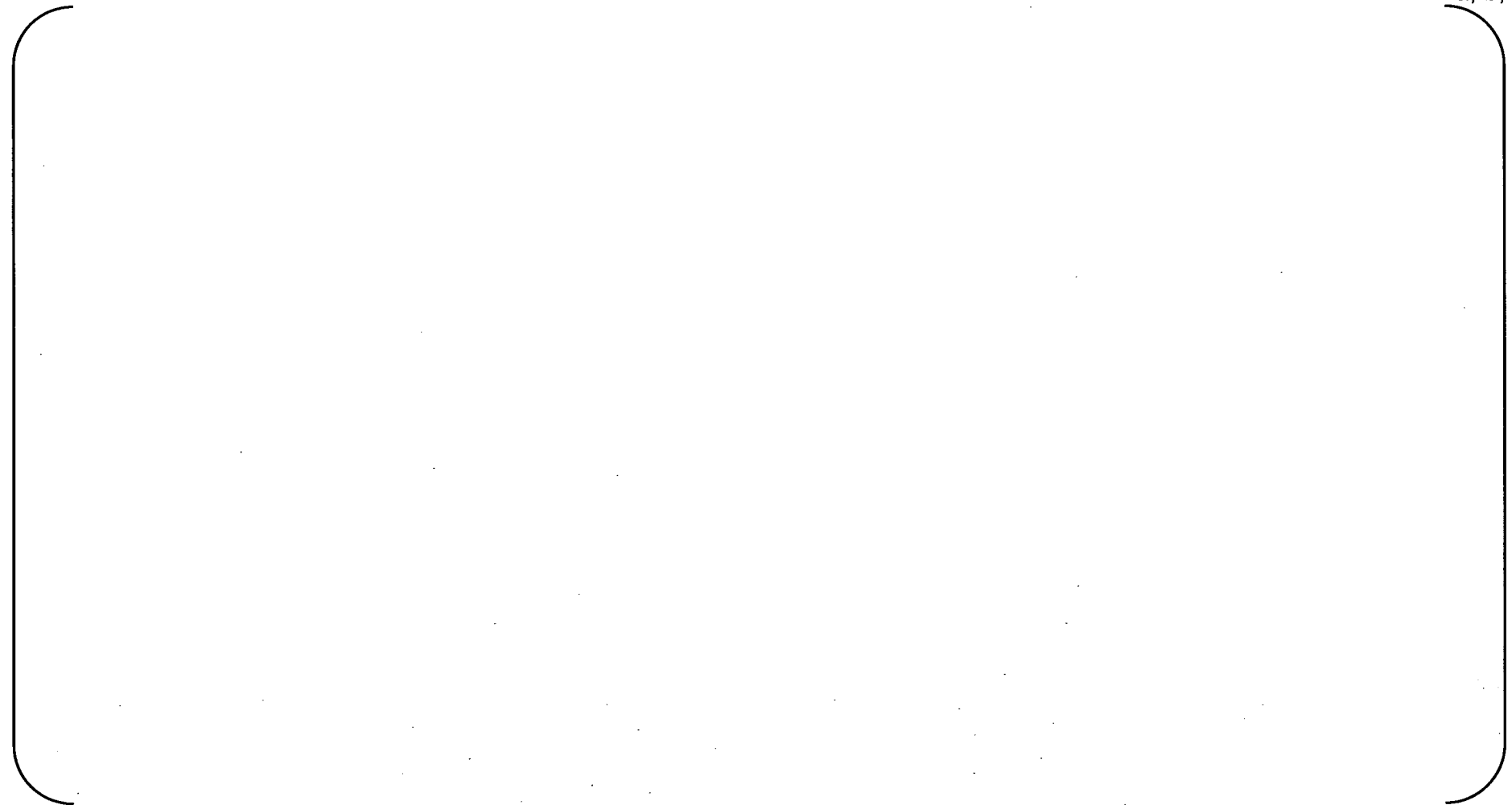
30



# Shield Building Cylindrical Wall – Design Modifications



a, b, c



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# Shield Building Cylindrical Wall - Design Modifications

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a, b, c



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# Shield Building Cylindrical Wall – Design **AP1000** Modifications

a, b, c

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# ***Air Inlet Design Modifications***

a, b, c



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# ***Air Inlet Design Modifications***

a, b, c



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# ***Air Inlet Design Modifications***

a, b, c



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a, b, c

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# Overall FIE Model and Loading

a, b, c



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# ***Equivalent Seismic Accelerations***



a, b, c



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# **Loading – Based on 100 - 40 - 40 Rule**



a, b, c



## *Preliminary Report*

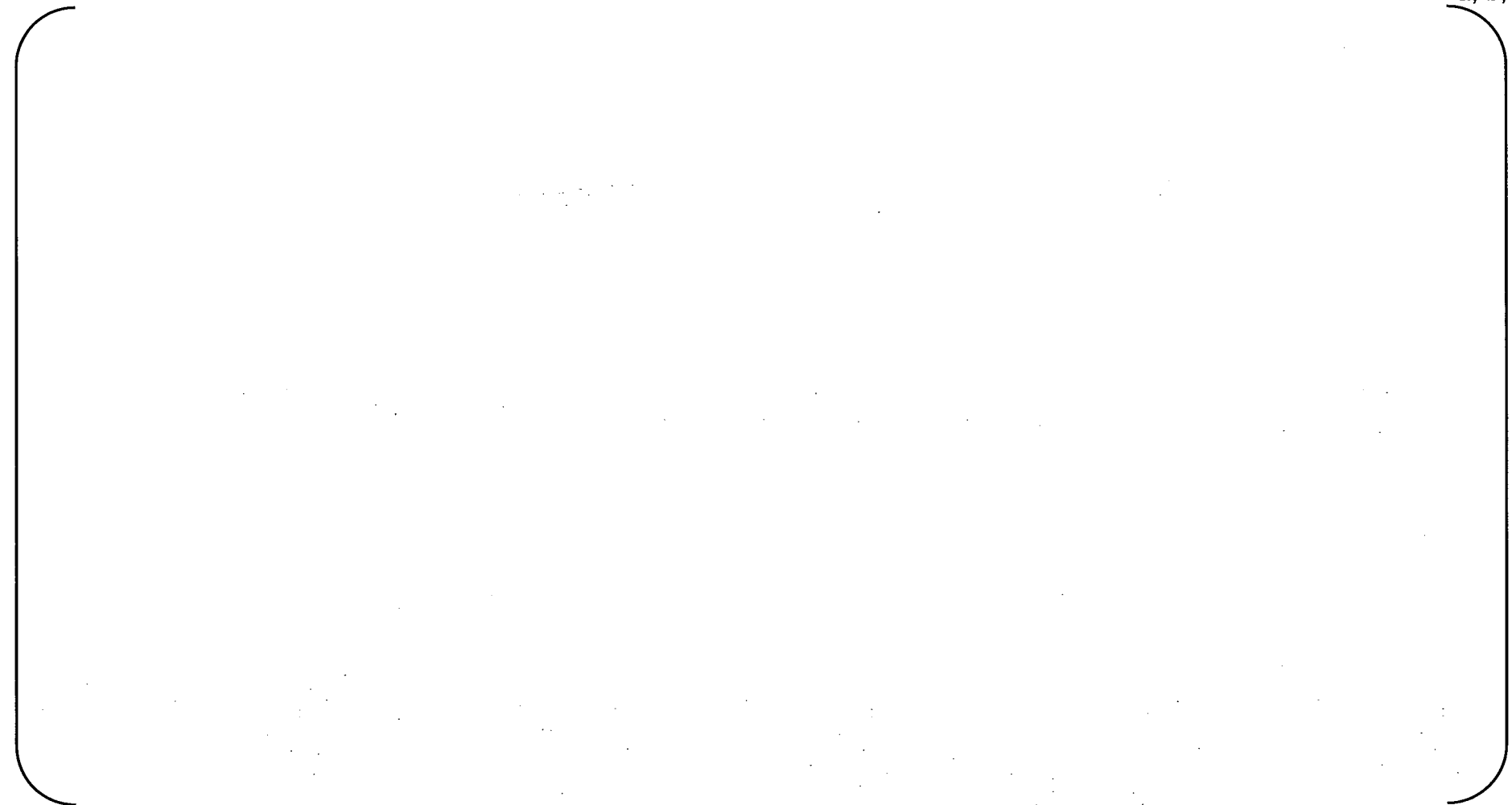
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# Water Tank Seismic Loading



a, b, c



## *Preliminary Report*

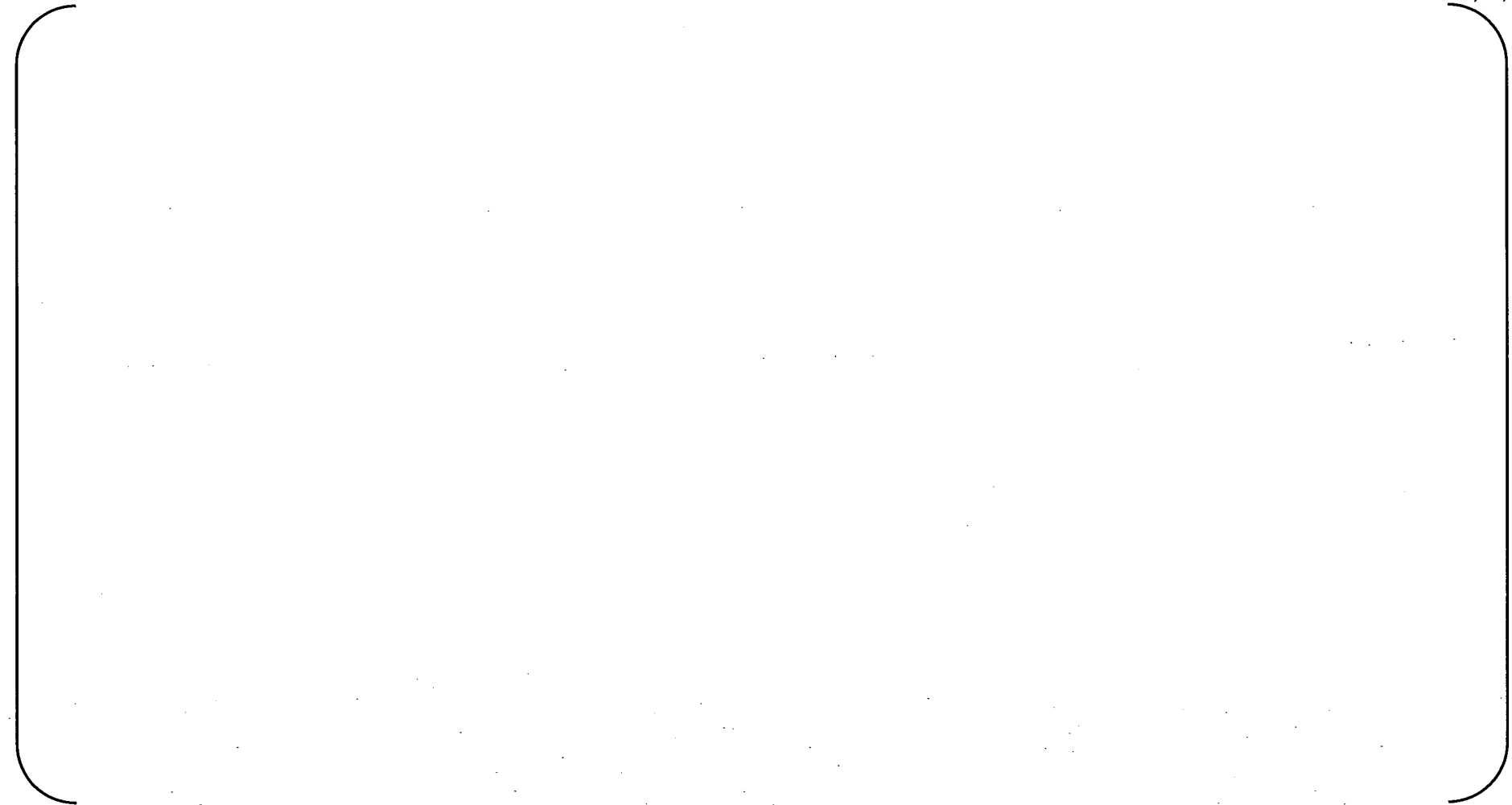
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# Concrete Modeling

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a, b, c



## *Preliminary Report*

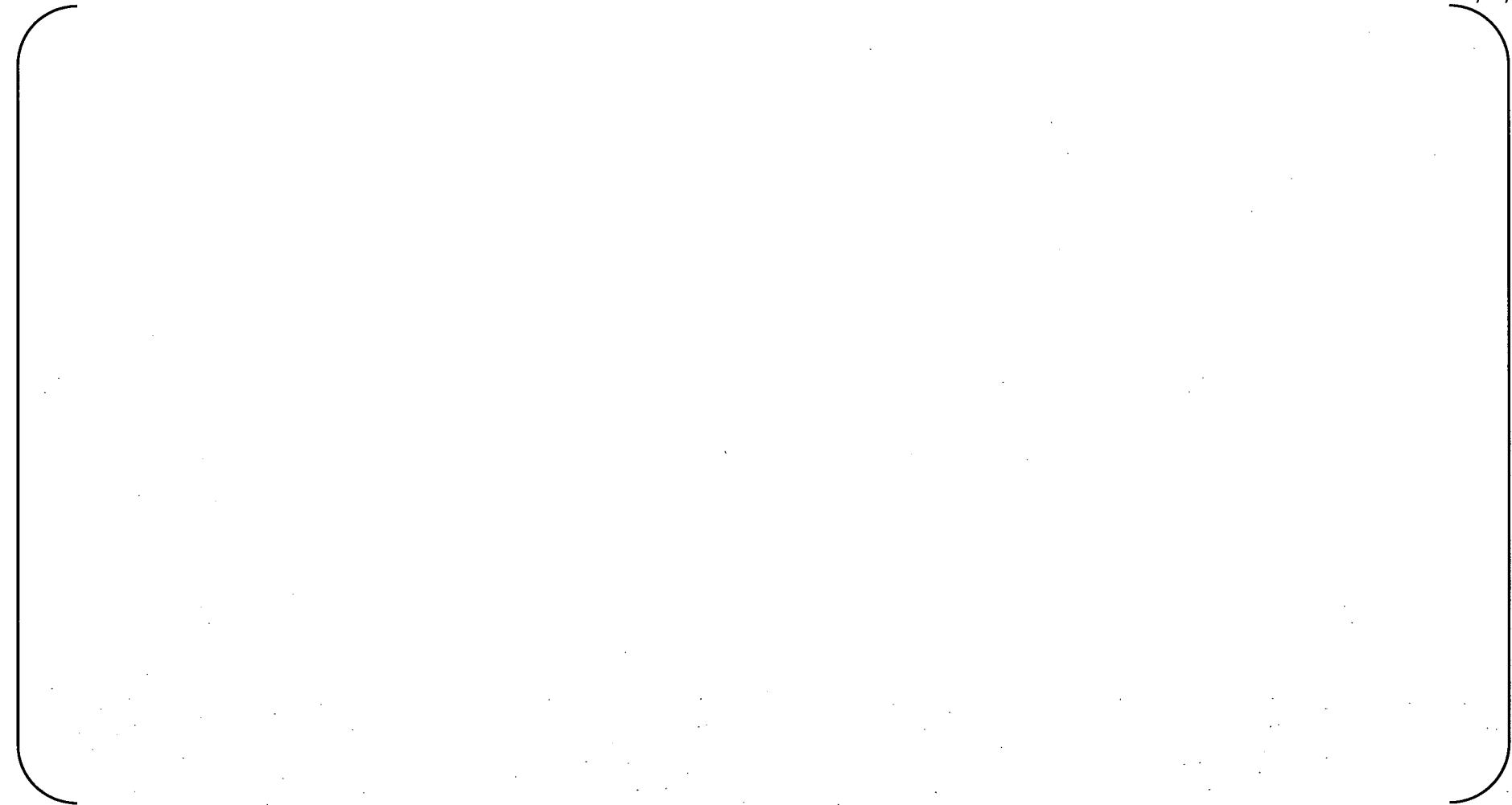
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# ***Nonlinear Liner Modeling***



a, b, c



## *Preliminary Report*

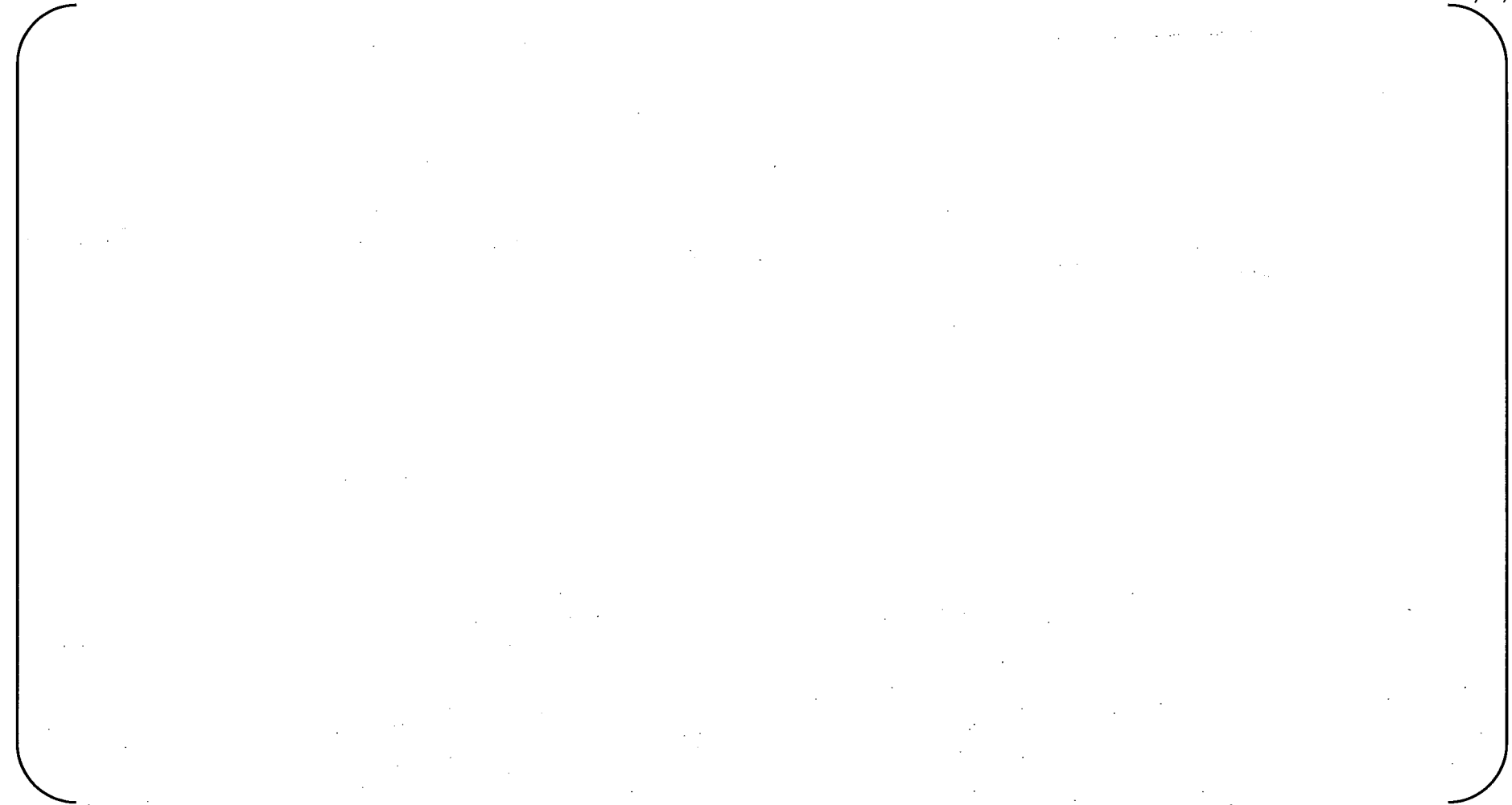
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# ***Air Inlets, Tension Ring and Adjoining Area Details***



a, b, c



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# Steel Beams Modeling

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a, b, c

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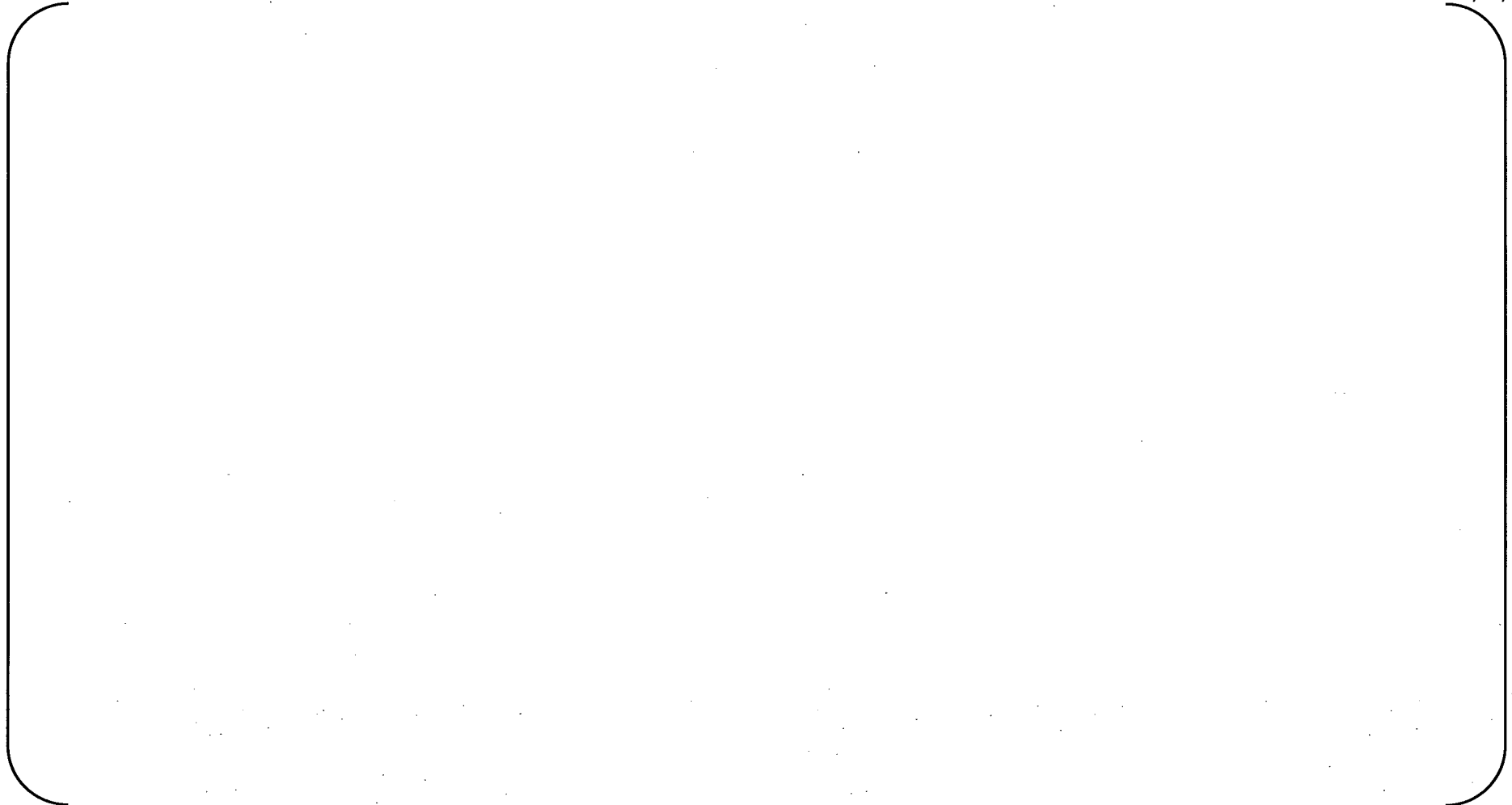
45



# Roof and Tension Ring Rebars Modeling



a, b, c



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# Steel Stiffeners Modeling

AP1000

a, b, c

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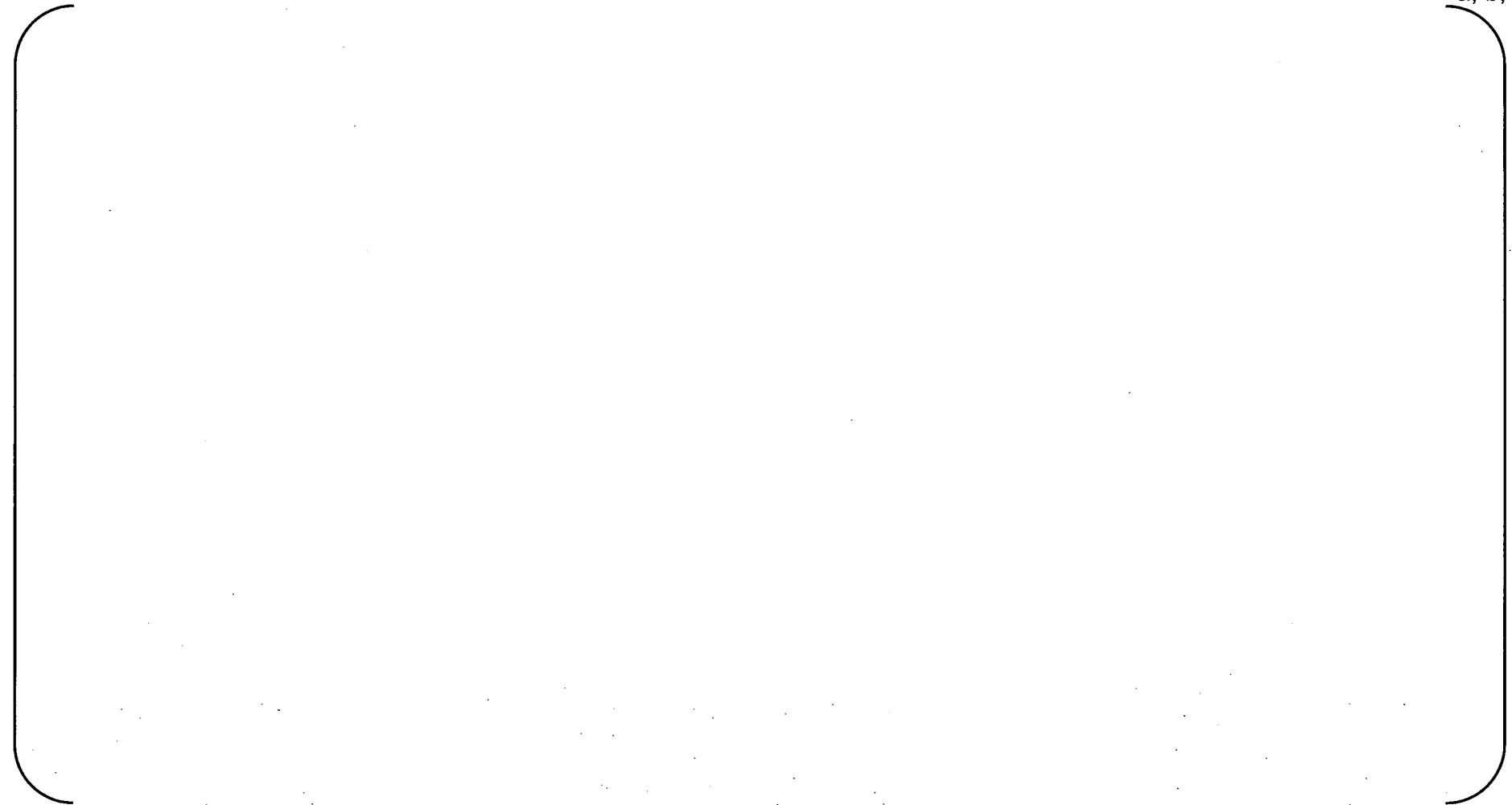




# Summary of Peak Stress Values

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a, b, c



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# Conclusions on New Design



a, b, c



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a, b, c

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# Testing Matrix

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a, b, c



*Preliminary Report*

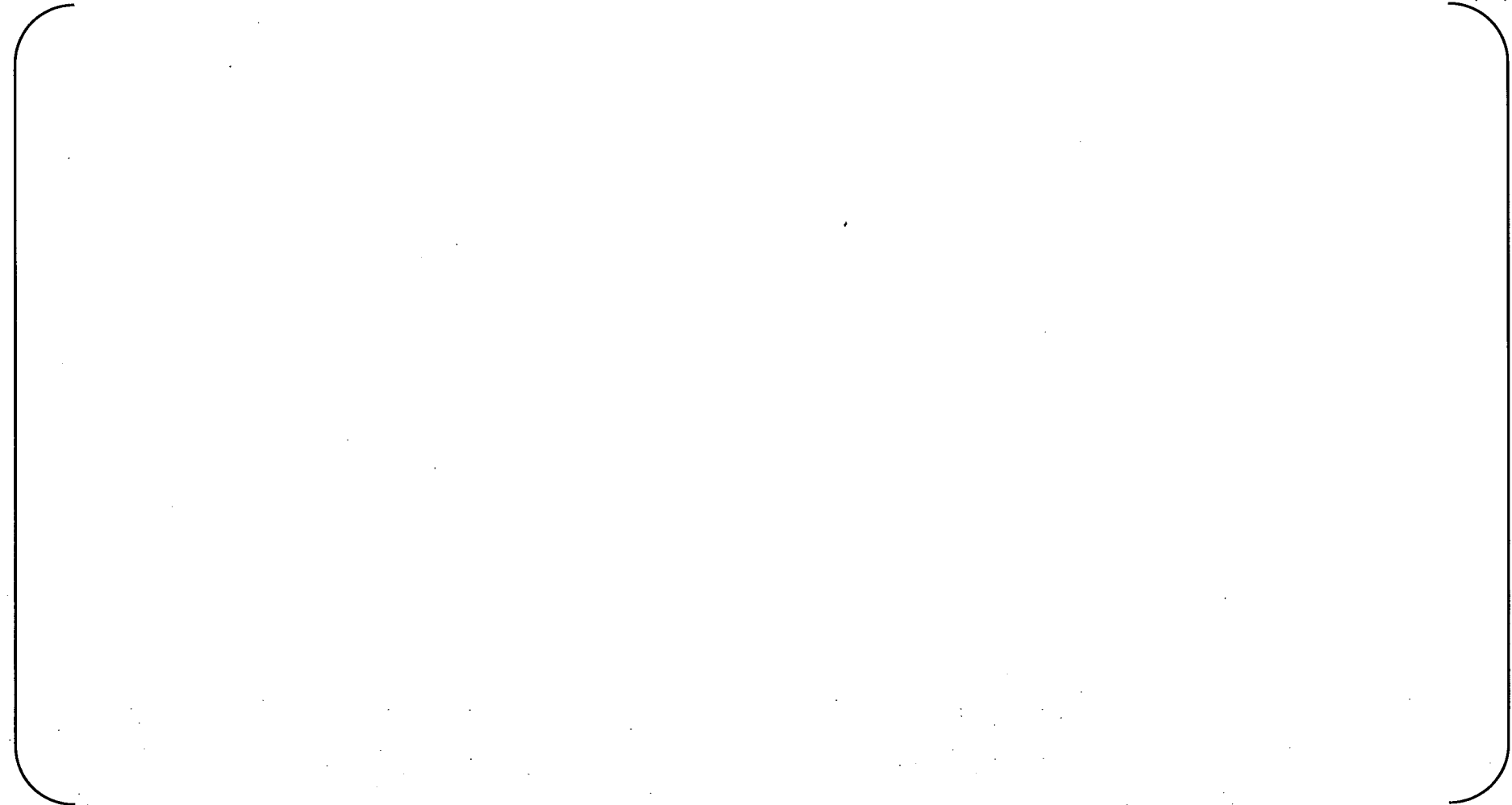
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# Anchorage Test



a, b, c



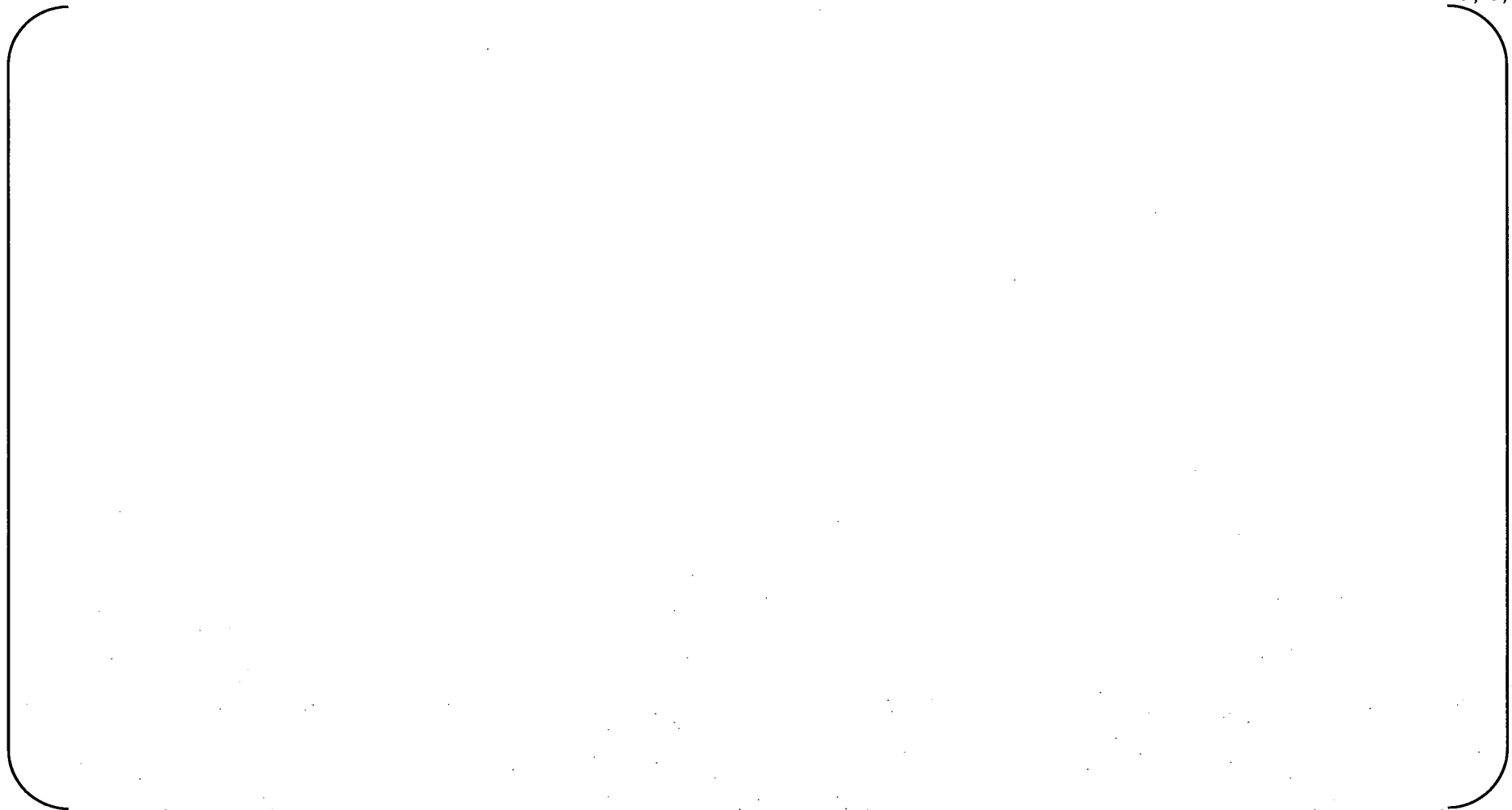
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# ***3D View of Anchorage Test***

a, b, c



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# Preliminary Test Results



a, b, c



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# Out of Plane Shear w/out Tension

AP1000

a, b, c



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# Out of Plane Shear Plus Tension

AP1000

a, b, c



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# ***In Plane Shear Plus Tension***

a, b, c



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# ***In Plan Shear Plus Tension***

a, b, c

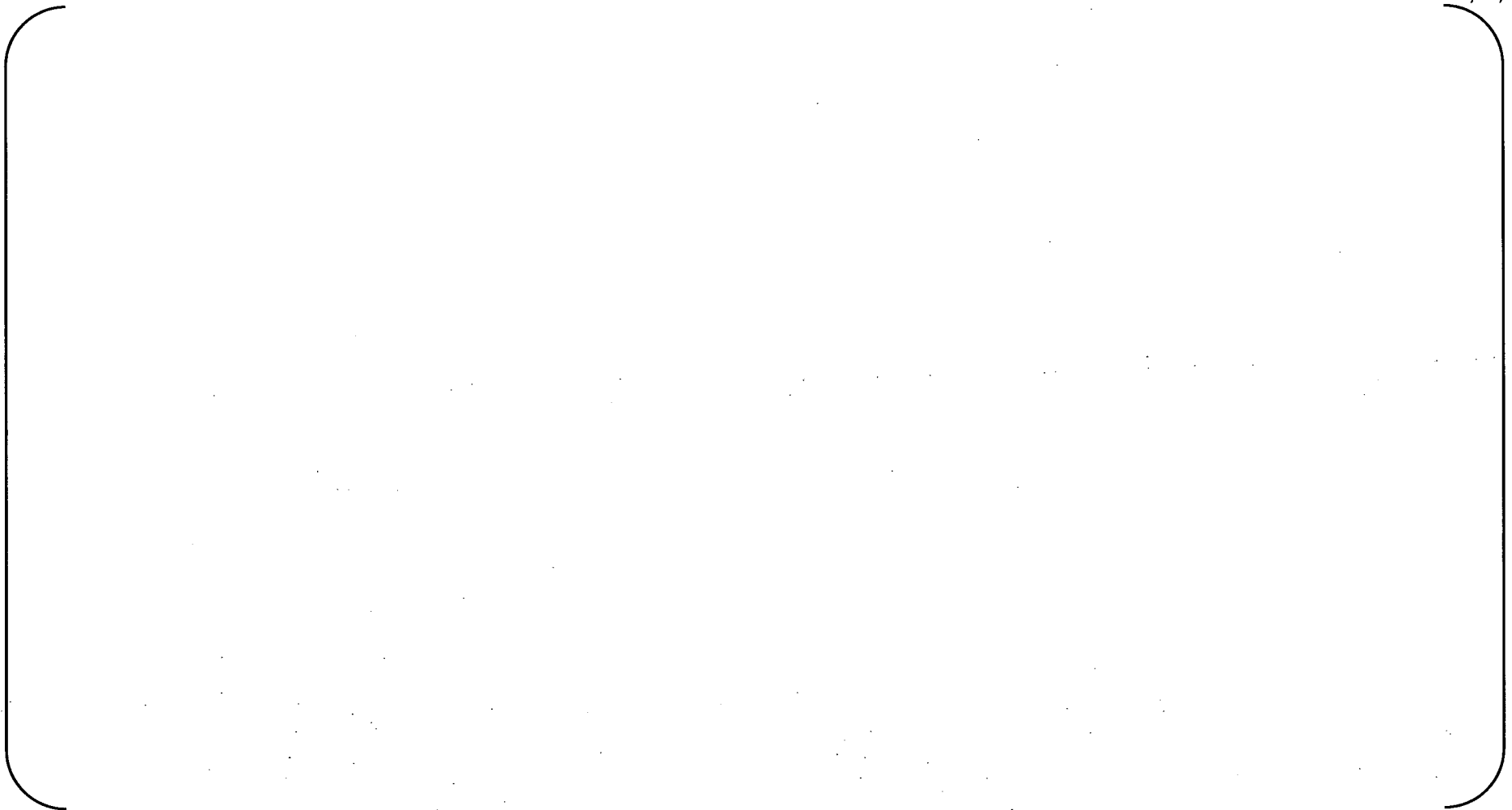


## *Preliminary Report*

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# ***In Plane Shear Plus Tension***

a, b, c



## *Preliminary Report*

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# ***Self Consolidating Concrete Material Testing***



a, b, c



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60



# AP1000 Testing



a, b, c



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**AP1000**

a, b, c

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# **Toshiba Mock Up Tests in Japan**



a, b, c



## *Preliminary Report*

Westinghouse Non-Proprietary Class 3





# Toshiba Mock Up Tests in Japan

AP1000

a, b, c



*Preliminary Report*

Westinghouse Non-Proprietary Class 3

64



# **Toshiba Mock Up Tests in Japan**

**AP1000**

a, b, c

## *Preliminary Report*

Westinghouse Non-Proprietary Class 3

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# **Construction Experience of SC Structures in Japan**



a, b, c

## *Preliminary Report*

Westinghouse Non-Proprietary Class 3

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# ***Construction Experience of SC Structures in Japan***



a, b, c



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# Shaw Construction

**AP1000**

a, b, c



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**AP1000**

a, b, c

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# Shield Building Issues

**AP1000**

a, b, c

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# Conclusion



a, b, c



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**AP1000**

a, b, c

