

ENCLOSURE 4

Westinghouse Non-Proprietary Class 3

AP1000 Shield Building Briefing for NNSA Presentation on 10/30/09 –
(Non-Proprietary)

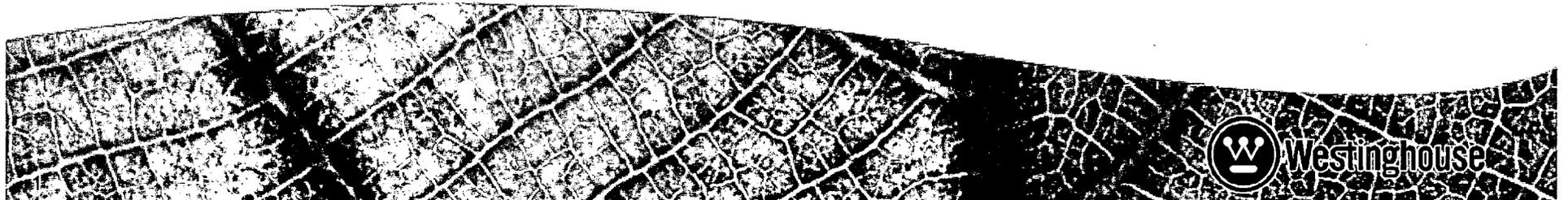


AP1000 Shield Building

Briefing for

NNSA

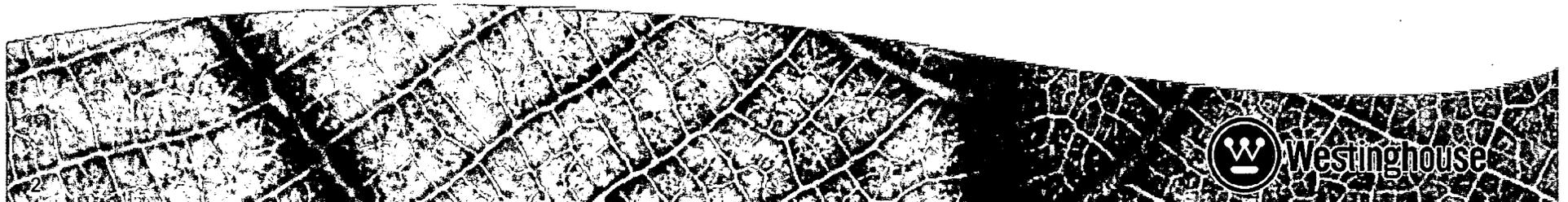
October 30, 2009





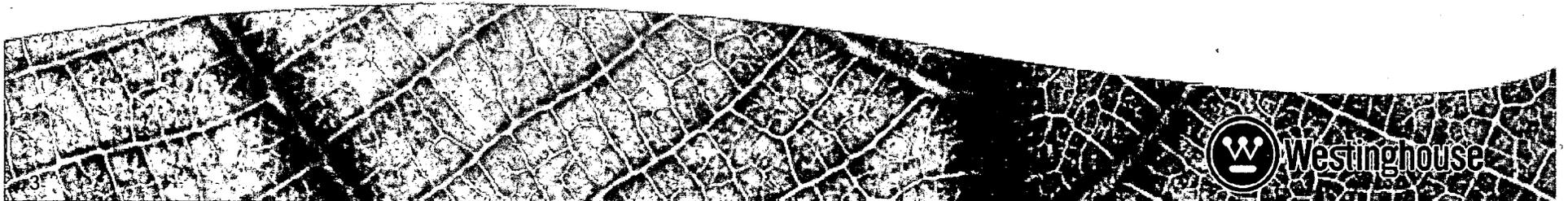
Shield Building Briefing Agenda

- Shield Building Design Overview
- Review the Shield Building Technical Issues Identified by the NRC
- Review WEC Technical Position Regarding the NRC Issues
- China Project





Shield Building Design Overview





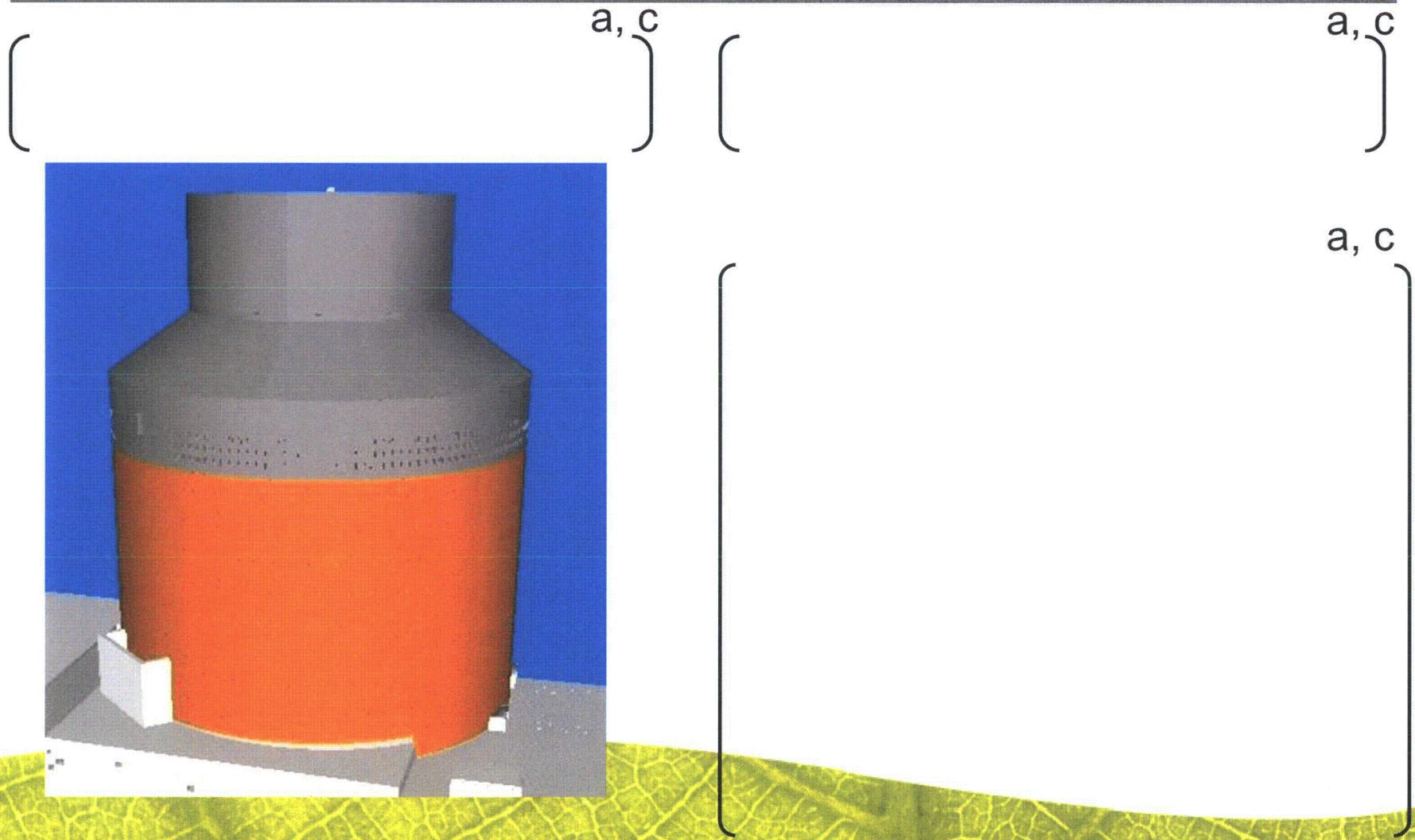
Functional Design Requirements

- Shield Building is designed to withstand the following design loads; dead and live loads, operating loads, seismic load, tornados and missiles
- Protect the Containment Vessel against aircraft impact
- The Shield Building is an integral component to plant shielding
- During accident conditions, the shield building provides necessary protection for the public and environment against radiation
- The shield building is a vital component of passive containment cooling system
- Support system for the Passive Cooling System tank



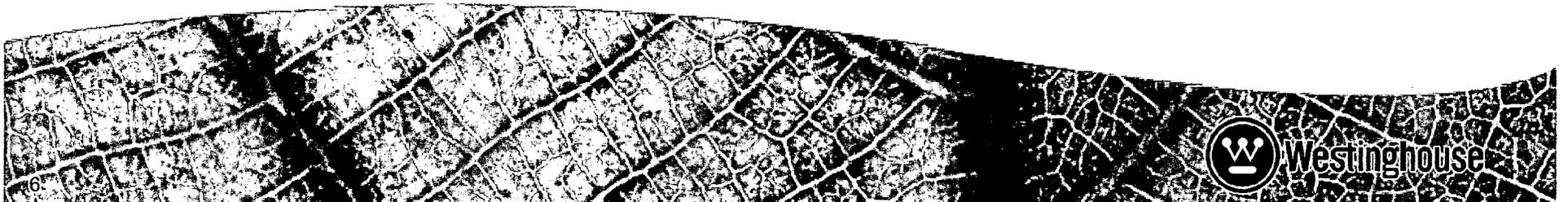


SB Design Layout Overview





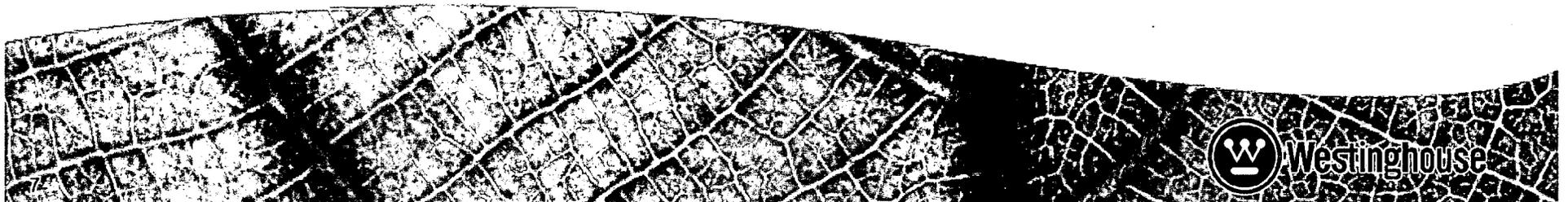
NRC Identified Shield Building Issues





NRC Identified SB Issues

- On October 15, 2009 the NRC issued a letter to Westinghouse that contained their conclusion of the review of the AP1000 Shield Building Design
- The NRC concluded that the proposed design will require modifications in some specific areas to ensure its ability to meet its safety function under design basis loading conditions





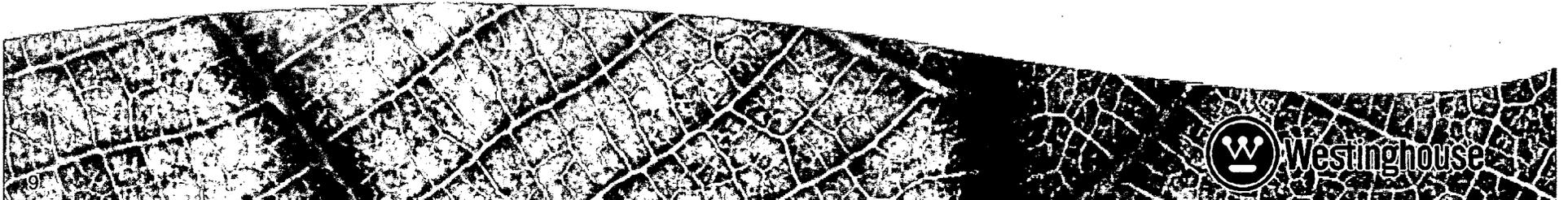
NRC Major SB Conclusions

- Design changes of the steel and concrete (SC) composite structural module are needed to demonstrate that the SC structure will “act as a single unit” during a design basis event
- The design of the connection of the SC module to the reinforced concrete wall sections of the shield building must demonstrate the ability to function during a design basis event
- The design of the shield building tension ring must be supported by a confirmation test or a validated (benchmarked) analysis method
- The NRC also identified additional items that Westinghouse must address in an Attachment to the Letter
 - These items are confidential to Westinghouse at this time but will be discussed in this briefing





Westinghouse Actions to Address NRC Identified Shield Building Issues



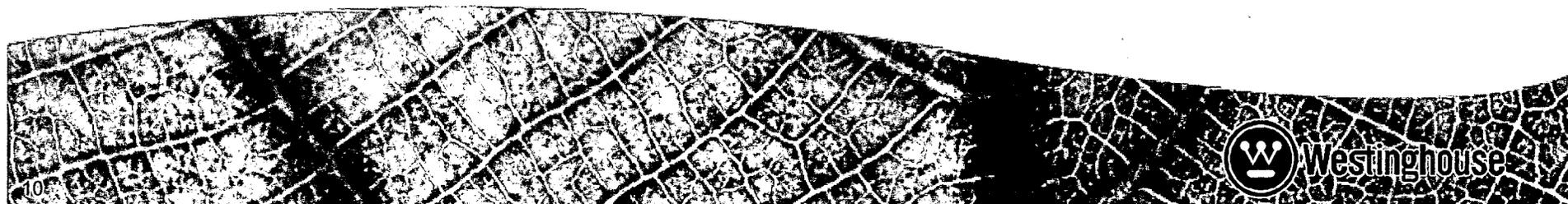
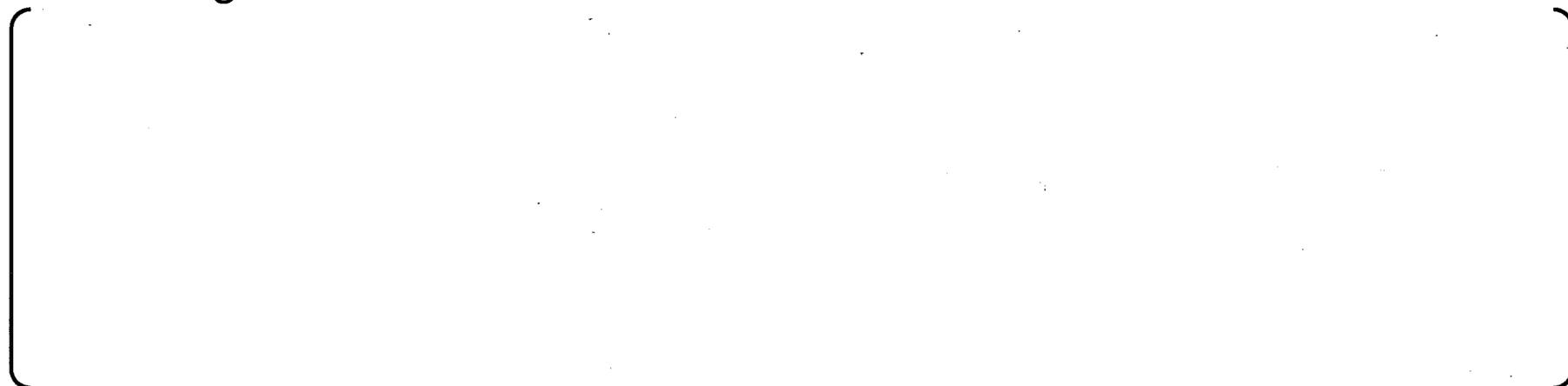


Westinghouse Response to NRC Position

- NRC Position:
 - Design changes of the steel and concrete composite structural module are needed to demonstrate that the (SC) structure will “act as a single unit” during a design basis event

- Westinghouse Planned Resolution:

a, c





Shield Building Design Modification

a, c



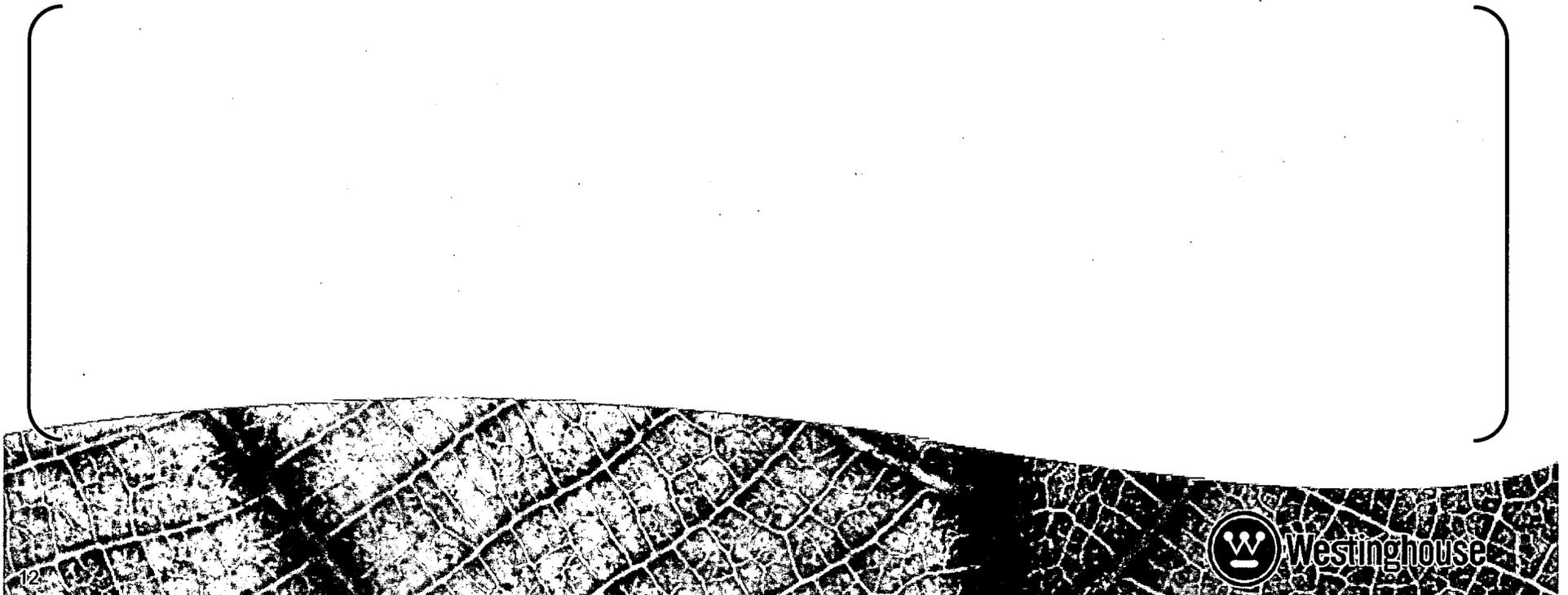


Westinghouse Response to NRC Position

- NRC Position:
 - The design of the connection of the SC module to the reinforced concrete wall sections of the shield building must demonstrate the ability to function during a design basis event

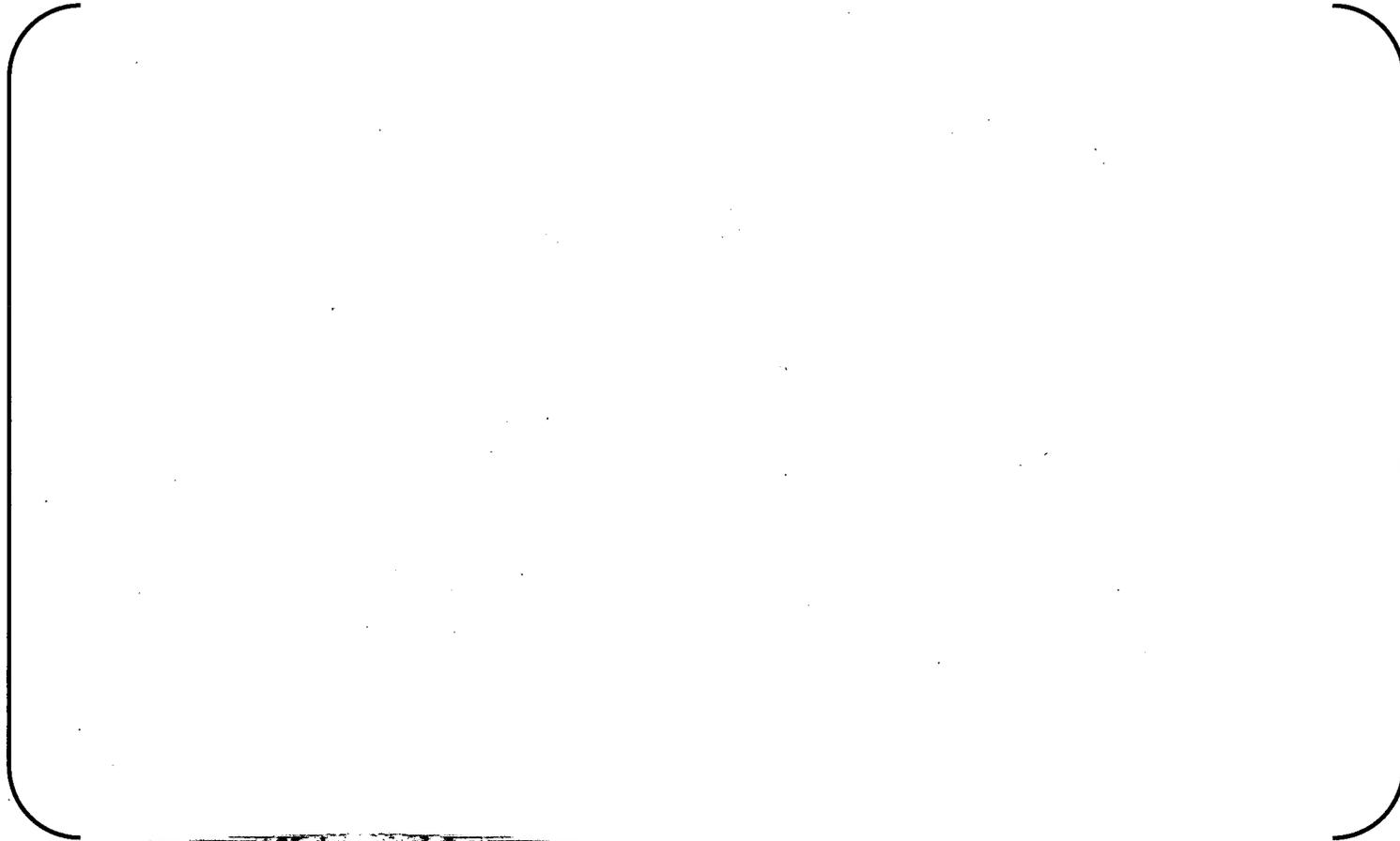
- Westinghouse Planned Resolution:

a, c

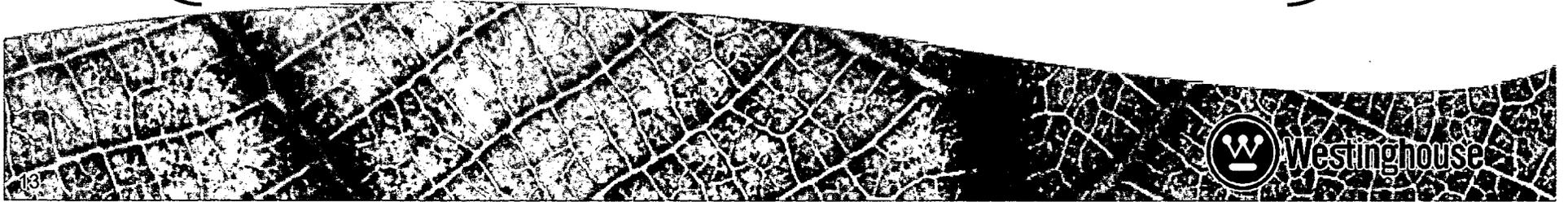




Anchorage Test Setup



a, c





SB SC-RC Connection Test

a, c

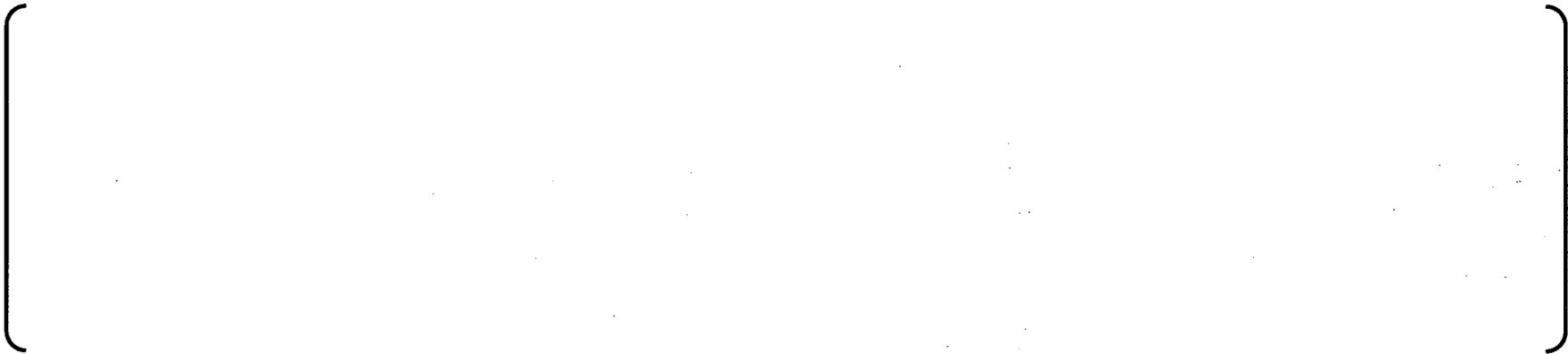




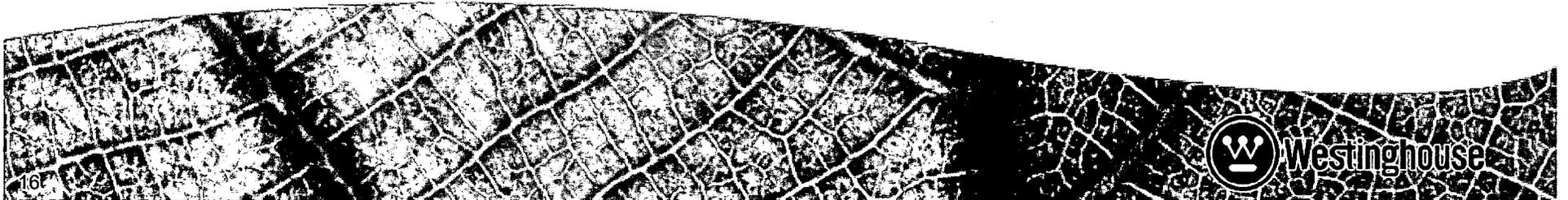
Westinghouse Response to NRC Position

- NRC Position:
 - The design of the shield building tension ring must be supported by a confirmation test or a validated (benchmarked) analysis method

- Westinghouse Planned Resolution:



a, c





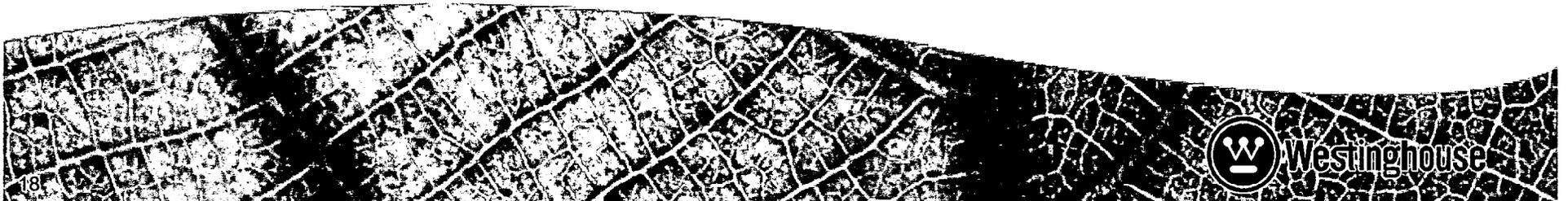
NRC Additional Comments

- NRC also included additional comments in an attachment to the letter
- These additional comments are being addressed by
 - The design modifications that further demonstrate the design “acts as a single unit”
 - More detailed finite element analyses
 - Improved construction methods
 - Detailed mock-up and construction/inspection procedures
 - Data regarding Self-consolidating concrete shrinkage performance
 - Revised confirmation test plans





China Project





WEC Response

a, c





SB Construction Up to Elevation 100'

a, c





Conclusion

a, c

