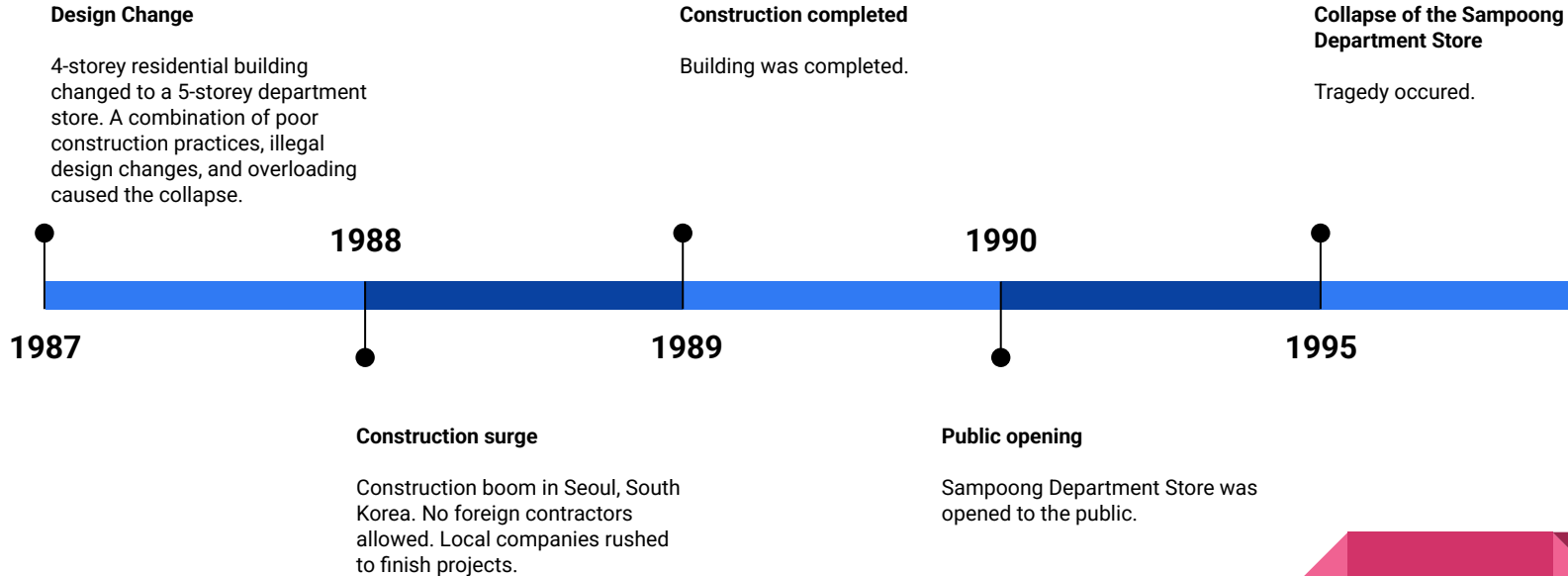




# Sampoong Department Store Collapse

# Background



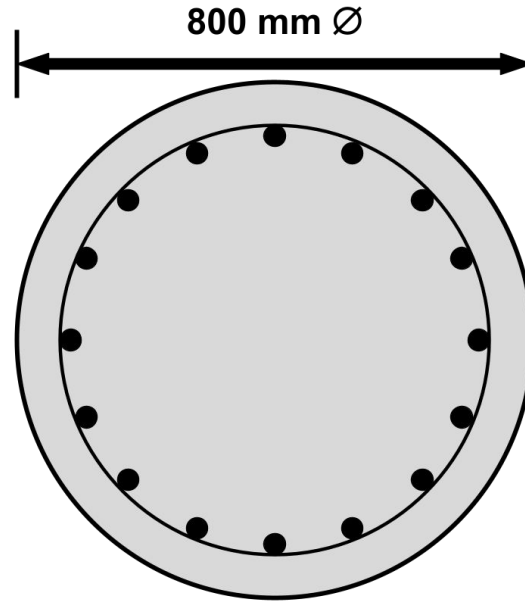
# Design and Construction Deficiencies

- ❖ Columns
- ❖ Slabs
- ❖ Drop Panels
- ❖ Anchorage
- ❖ Bond

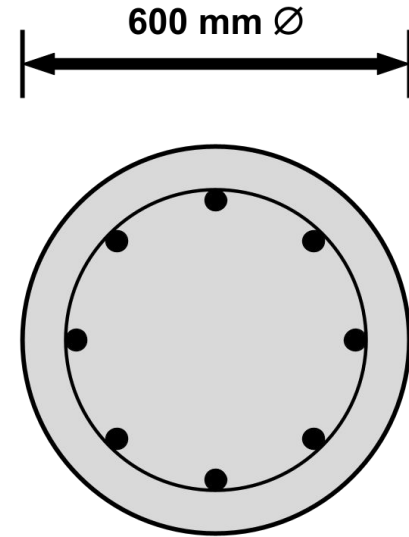


# Columns

- ❖ Inconsistent rebar placement
- ❖ Excessive concrete cover
- ❖ Some hoop bars place inside



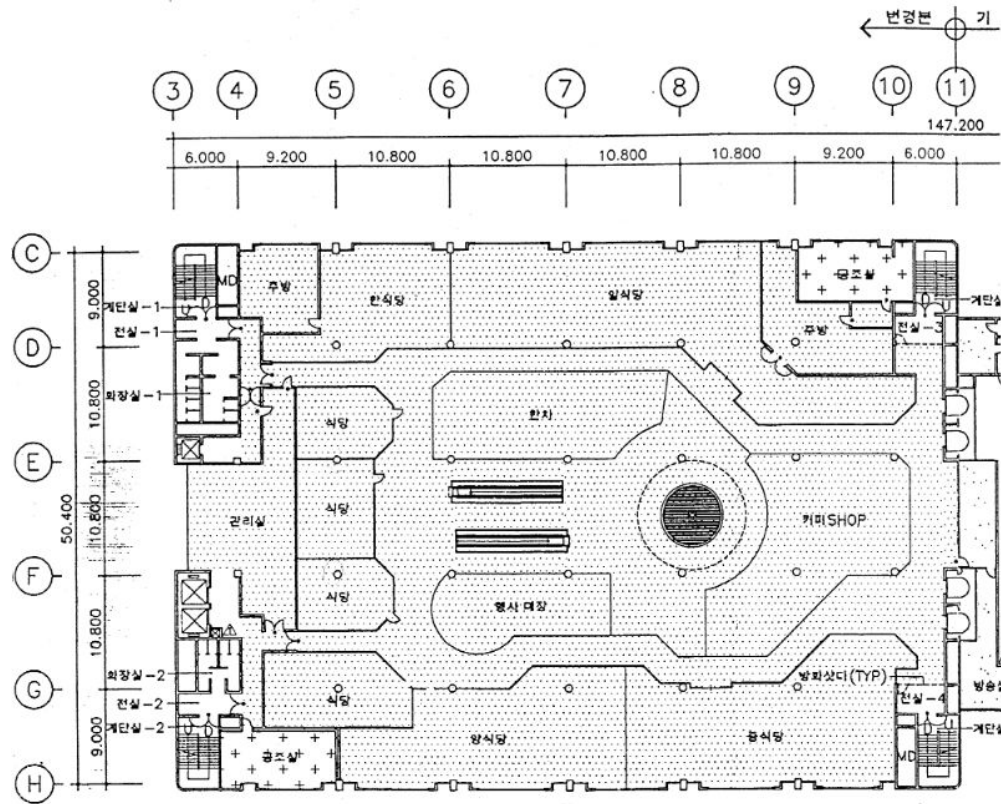
$A_s = 16-22M$



$A_s = 8-22M$

# Slab and Drop Panels

- ❖ Poor construction joints
- ❖ Effective slab depth reduced by 50 mm at most columns
- ❖ Missing drop panel at 4E



(Gardner et al. 2002)

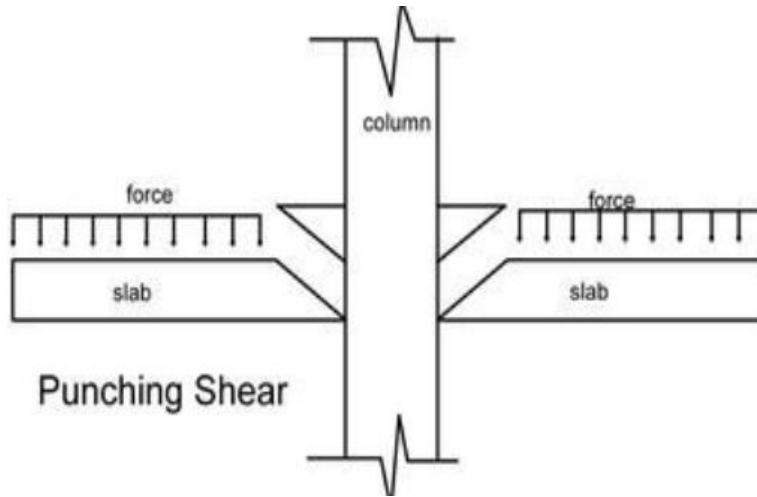
# Anchorage and Bond

Insufficient development length from rooftop slab into North shear wall was 250mm with no bend.

The bond between the concrete and reinforcing bars was poor, as the rebar separated from the concrete in the collapse.



# Punching Shear



# Ethics Concerns

- ❖ Management ignored warnings from inspectors.
- ❖ Profit was prioritized over safety.
- ❖ Engineers failed to report or stop unsafe practices.
- ❖ Weak code enforcement allowed unsafe conditions.





# Lessons Learned

- ❖ Ethical responsibility must outweigh financial interest.
- ❖ Adherence to building codes is critical.
- ❖ Reports of safety concerns should be acknowledged and acted upon promptly.
- ❖ Enforcement of safety regulations is critical to prevent disasters.



# Legal and National Aftermath

- ❖ Chairman, engineers, contractors, and officials convicted of negligence and bribery.
- ❖ Corruption in building inspection and approval.
- ❖ Stricter building codes and stronger safety laws.
- ❖ Major reform in construction oversight.



REN21. (2021). *Seoul*. REN21. <https://www.ren21.net/cities-2021/cities/seoul/seoul/>

# Collapse Aftermath: Lives Affected



# References

Park, T. W. (2012). Inspection of collapse cause of sampoong department store. *Forensic Science International*, 217(1), 119-126.

<https://doi.org/10.1016/j.forsciint.2011.10.039>

Gardner, N. J., Huh, J., & Chung, L. (2002). Lessons from the sampoong department store collapse. *Cement & Concrete Composites*, 24(6), 523-529. [https://doi.org/10.1016/S0958-9465\(01\)00068-3](https://doi.org/10.1016/S0958-9465(01)00068-3)

Seoul Metropolitan City. (1996). Sampoong Department Store Collapse Accident White Paper (No. MONO1199606952). National Assembly Library. Retrieved March 21, 2025, from <https://dl.nanet.go.kr/detail/MONO1199606952>

Inf News. (n.d.). *Sampoong Department Store collapse: South Korea's deadliest modern disaster*. Inf News.

<https://inf.news/en/world/ce146baaddb22d8a2ec58858b07fc90a.html>

Namu Wiki. (n.d.). *삼풍백화점* [Sampoong Department Store].

<https://en.namu.wiki/w/%EC%82%BC%ED%92%8D%EB%B0%B1%ED%99%94%EC%A0%90>

