[Bonus] AFD Ep 355 Links and Notes - Dropped Ceilings [Bill/Rachel] - Recording Mar 1

- False ceilings of various types have existed for centuries for various form and function reasons, but on this week's bonus episode, we're talking about the modern dropped ceiling that helped unlock the postwar office sector and eventually helped facilitate the third industrial revolution of the information technology age.
- Modern dropped ceilings were patented in 1919 and refined with additional patents over the course of the 1950s, spanning a time period in which telephones became increasingly widespread throughout offices. (We'll have to talk about central air conditioning in a later episode.) By 1958, the design where any single panel could be removed for accessing a specific point without needing to remove other panels had been invented.
- https://en.wikipedia.org/wiki/Dropped_ceiling
- In Britain they are called "suspended ceilings" https://www.onlysuspendedceilings.co.uk/suspended-ceilings/history-of-suspended-ceilings/
- Dropped ceilings are critical for allowing offices to hide all the electrical wiring and ducts while still making them very easy to access for repairs and equipment upgrades. This became particularly important after computerization
- *So-called "drop" ceilings are a system of lightweight metal rails suspended by wire from a higher ceiling, which are then fitted with tiles of some sort. Popular in commercial office spaces to easily hide mechanical things like ductwork and wiring runs, the network of uniformly sized grid squares found in a drop ceiling enables architects … to install sound deadening acoustic tiles, pre-fabricated light fixtures, air conditioning vents, and much more in a way that hide the messy mechanical connections and components needed to power a space.* https://www.thisoldhouse.com/ceilings/21078493/all-about-ceilings
- Generic dropped ceilings (as opposed to fancier custom designs) today tend to be made of fiberglass or gypsum. Some older ones used to use asbestos.
- Dropped ceilings also make offices quieter to work in (which is another reason that the industrial look of many tech firms is bad in addition to open office plans) and they are less expensive to maintain over time than open ceilings: https://www.workdesign.com/2018/04/hidden-costs-of-open-ceilings/
    - *Office users may install acoustical panels directly onto the deck, or suspend baffles to absorb sound in critical areas. Spray-on acoustical material applied to the ceiling's hard, reflective surfaces is another solution. These products soften the surfaces to absorb some of the noise, and typically have other benefits such as thermal insulation and fire protection. Spray-on solutions also cost less than panels or baffles, however, no work can be done in the space while the spray-on material is being applied. This adds seven to 10 days to the construction schedule, diminishing the savings.*
    - *Open ceilings may involve lower material costs than suspended ceilings, in some cases, but any savings is more than offset by the cost of labor-intensive tasks required for open plenum. For instance, added labor-intensive tasks may include running all electrical distribution conduit tight to the deck above with the associated additional bends in the runs, rather than running all of the conduit that crosses paths at different elevations.*
    - *Old ductwork is typically blocky, dirty, oily and generally not aesthetically pleasing. Round or oval ductwork, as we used in the build-out for Glassdoor's new headquarters, delivers a more "finished" look, but is significantly more expensive. In addition to swapping unsightly ducts, space users want everything painted from the exposed ceiling to the ductwork and plumbing—a job that's far more complicated than simply painting walls. This also helps tie together what*

you see when you look up with the color scheme, décor, and branding choices on the floor. In other words, the casual look of an open plenum is actually the result of a lot of skilled labor.

- Fire safety: https://www.ocwr.gov/sites/default/files/wp-content/uploads/2010/03/fastfacts_ceilingtiles.pdf https://www.csemag.com/articles/safety-code-issues-of-drop-out-ceilings/
    - While many dropped ceilings are expected to help contain fires if properly installed (and some models drop out at high temperatures to facilitate sprinklers), they can pose a major hazard if improperly maintained (for example a single missing tile can create a dangerous chimney effect) or if installed over older, non-fire-resistant ceiling materials on the true ceiling: https://www.fireengineering.com/fire-prevention-protection/suspended-ceilings/#gref
    - https://ifpmag.mdmpublishing.com/suspended-ceilings-the-risks-of-improper-sprinkler-head-alignment/
- Mold, germs, and moisture: Improperly installed or improperly ducted dropped ceilings can have mistakenly isolated areas without proper ventilation where moisture builds up and facilitates mold or other germs
- This page is by a company that promotes open ceiling “industrial” aesthetics instead of dropped ceilings and you can see how much cabling is exposed everywhere in all the photos: https://www.bwcfla.com/blog/industrial-office-low-voltage-cabling
- In the second half of the 19th century before modern dropped ceilings were invented but after mass production of rolled tin sheets, a popular kind of false ceiling (mostly for aesthetic purposes) was decorative “tin ceilings” made to look like fancy European plaster ceilings: https://www.tinceiling.com/company/history-of-tin-ceilings/ Notable that they were often installed in tiles, which perhaps could have influenced later tile ceilings. These tiles could be easily manufactured and shipped worldwide, unlike plaster.
- History of early office computerization: https://www.bbc.com/news/magazine-23509153 See also this item on “dumb terminals” which allowed desktop remote access by cable to mainframe computers before the advent of actual, individual desktop computers: https://weburbanist.com/2009/05/05/its-terminal-a-dozen-scenes-of-early-office-computing/