

Mushrooms and U.S. Infrastructure

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Overview

- U.S. infrastructure problem
 - Current solutions
- Mushrooms might help
 - Upsides
 - Downsides

U.S. Infrastructure Problem

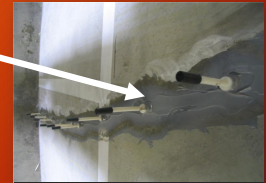
- Concrete cracks and crumbles over time
- Can lead to costly repairs of important infrastructure
 - Money
 - Time



Image From: publicradio.org
www.publicradio.org/content/2015/07/16/20150716_20150715b-
rider_monroe9_53.jpg

Current Solutions

- Replacing concrete completely
- Filling cracks with epoxy



What if concrete could fix itself?

Image From: conspecmaterials.com
www.conspecmaterials.com/wp-content/uploads/2015/08/ATC-
Adhesives-Technology-Crack-Kit-Concrete-Repair-Epoxy-
application.jpg

Mushrooms Might Help

- Mixing in fungal spores (*Trichoderma reesei*) when pouring concrete could be a solution.
- Spores will germinate and produce calcium carbonate deposits that fix the cracks.

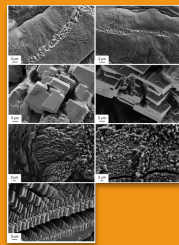


Image From: arxiv.org (Edited for clarity)
https://arxiv.org/pdf/1708.01337.pdf

Upsides/Downsides

- Upsides:
 - Cheaper than current solutions
 - Lasts longer
 - Benign for humans
- Downsides:
 - Would not fix current infrastructure
 - Further research is required before implementation

Conclusion

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