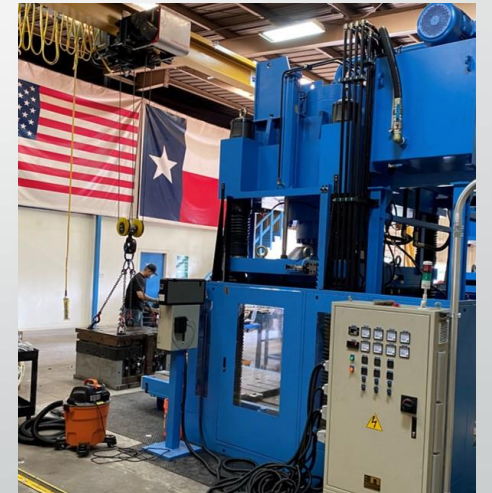






**Composite Access Products**

**Manufacturing the First Compression  
Molded, Traffic-Rated Composite  
Utility Access Covers in the USA**



***Innovation, Infrastructure, US Manufacturing***

# CAP WINS NATIONAL COMPOSITES AWARD

CAMX EXPO

## Winners for 2020 Award for Composites Excellence (ACE) announced

With rising construction activities worldwide, the manhole cover market is expanding. Through the collaboration between LyondellBasell and Composite Access Products (CAP; McAllen Tex., U.S.), composite solutions are replacing traditional materials like metal and concrete used in manhole applications due to its superior properties like strength, corrosion resistance and molding capabilities. Through CAP's compression molding process of LyondellBasell's thermoset material, cost improvements and rapid production cycles are realized when compared to resin transfer molding (RTM) and other fiberglass (FRP/GRP) casting processes. This process enhances quality by reducing entrapped gas, ensuring a complete thermoset polymer cure, delivering fully impregnated fiberglass and eliminating many post-process operations.



LyondellBasell and Composite Access Products (CAP) collaborated to replace traditional materials like metal and concrete used in manhole applications with composites. Photo Credit: ACMA





# Only State DOT Composite Approval Letter for “Within the Roadway” Use



08/01/2017

W. Chad Nunnery  
Composite Access Products L.P.  
5216 N. 26th Street  
McAllen TX, 78504

Re: RTI New Product Evaluation Tracking #16-2979  
"Composite Manhole Cover and Frame"

Dear Mr. Nunnery:

Thank you for submitting your product for evaluation. The Texas Department of Transportation's (TxDOT) Maintenance (MNT) and Bridge (BRG) Divisions has reviewed your request for approval of the Composite Manhole Cover and Frame along with the approved HS-20 and HS-25 testing.

TxDOT approves the use of the Composite Manhole Cover and Frame when being placed outside the roadway/clear zone and within the roadway/clear zone on low speed (<=45 mph) roadways.

A Special Specification will be required for the TxDOT District's use, to include, at a minimum, addressing measurement and payment, materials, loading, wear and abrasion, UV exposure, friction, and bolting/locking mechanisms.

This letter shall not be considered a product endorsement nor shall it be used for promotional purposes.

Thank you for contacting the Texas Department of Transportation. If you have further questions, please contact me at 512-416-4730.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Glancy", is written over a white rectangular area.

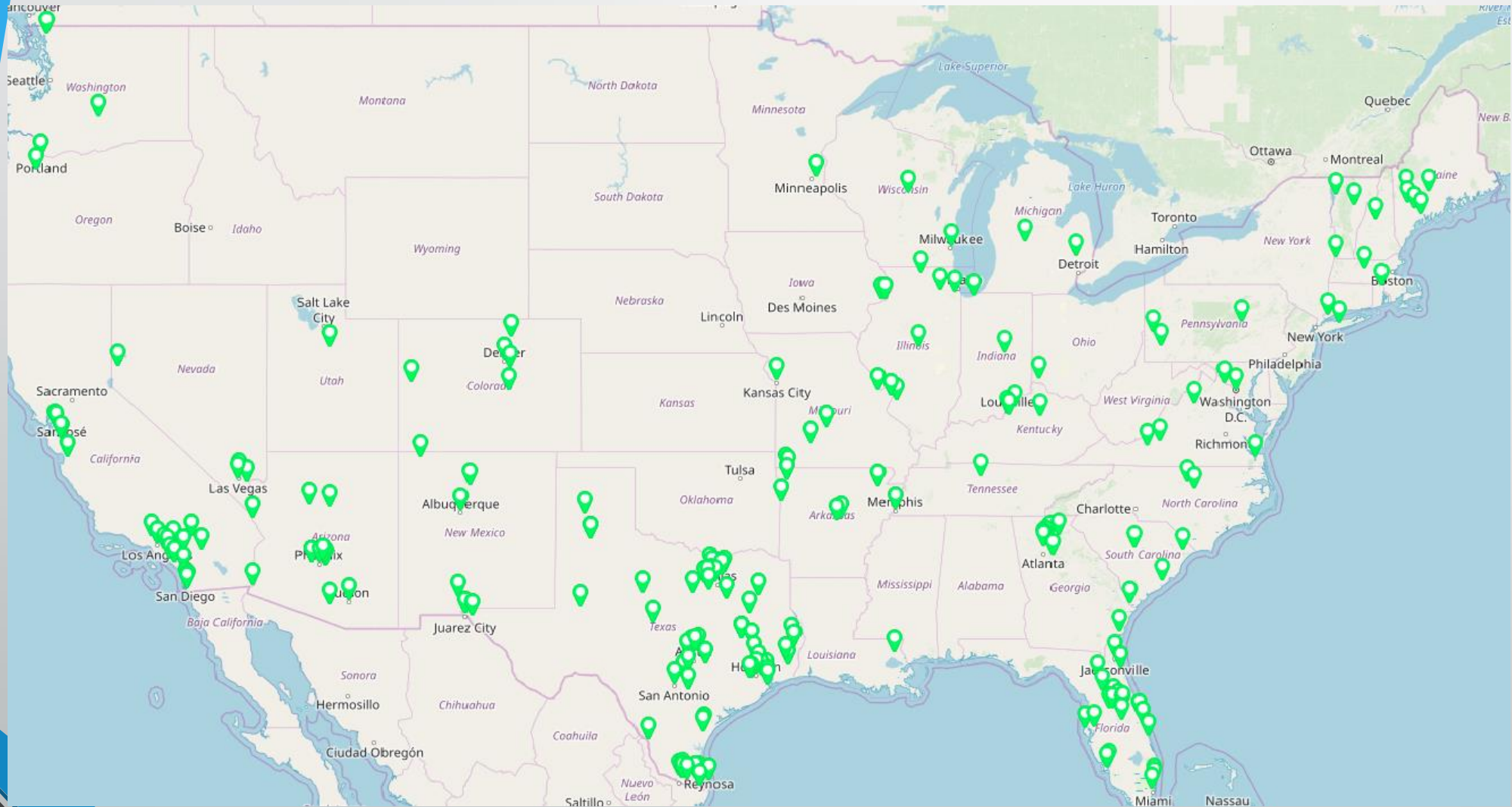
Chris Glancy  
Research Project Manager  
Research and Technology Implementation Office

cc Rocio Perez  
cc Taya Retterer





# CAP Installed in over 400 US Cities, 45 States!





# **The CAP Value Proposition –**

**How will CAP Compression Molded  
Composite Covers & Frames Benefit  
My Municipality?**

# 1.Reduction of Stormwater Inflow Into Sanitary Sewer

Reduction of Infiltration & Inflow (I&I) Reduces Sanitary Sewer Overflows (SSOs). Compression Molded Composites vs. Casted/Forged Iron Provide Design Flexibility and Tighter Tolerances For Complete Watertight Solution



# STORM WATER RUNOFF – LEADING SOURCE OF WATER POLLUTION

- 32 TRILLION GALLONS OF POLLUTED WATER FROM SEWAGE, CHEMICALS, AND WASTE -  
*Nature Conservancy, Summer 2019 Issue*
- Sanitary Sewer Overflows (SSOs)
- Infiltration and Inflow (I&I)

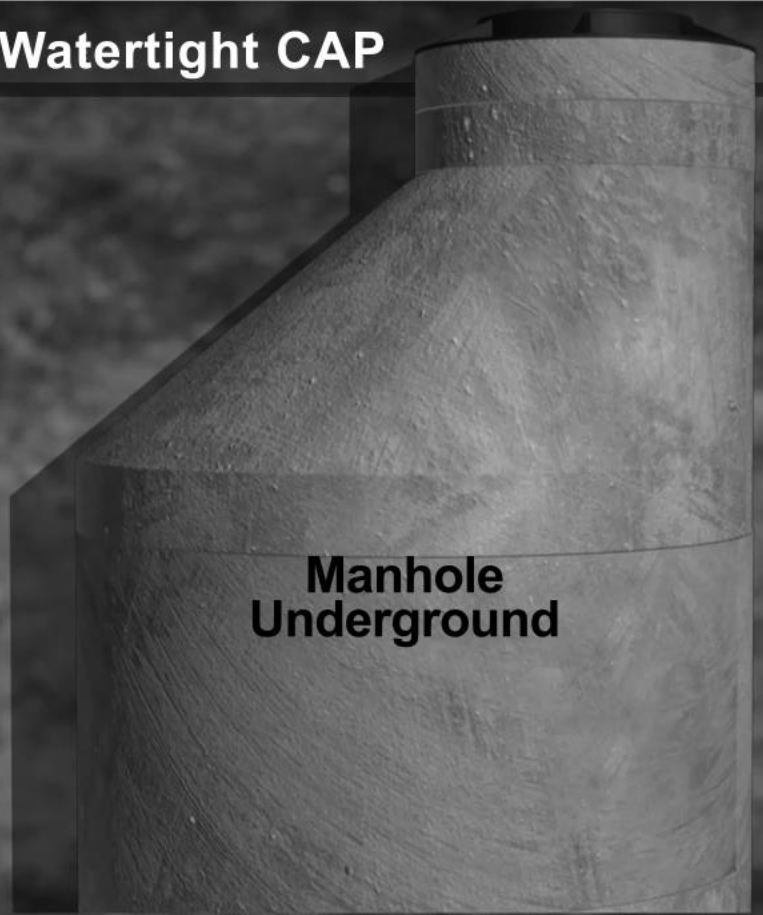




**CAP Watertight Covers  
Stop Inflow & Eliminate Sewer Spills**

**Fresh Water Pollution from  
Storm Water Inflow & Sewer  
Spillovers with Traditional  
Manhole Covers**

**Watertight CAP**



**Manhole  
Underground**

**Most Standard  
Manhole Covers**



**Manhole  
Underground**

# July 24, 2021

## Brownsville Herald



“Last year, 55 out of 61 beach locations monitored by Texas Beach Watch for fecal indicator bacteria were potentially unsafe for swimming on at least one day”



# *Inflow Through Some Standard Covers Today = about 45 GPM*



**If submerged  
year-round,  
this one  
manhole  
assembly  
would  
contribute 23  
million  
gallons of  
inflow!!!**

Simulation of Inflow in a Tank at Louisiana Tech through a traditional cover and frame submerged under six inches of water.

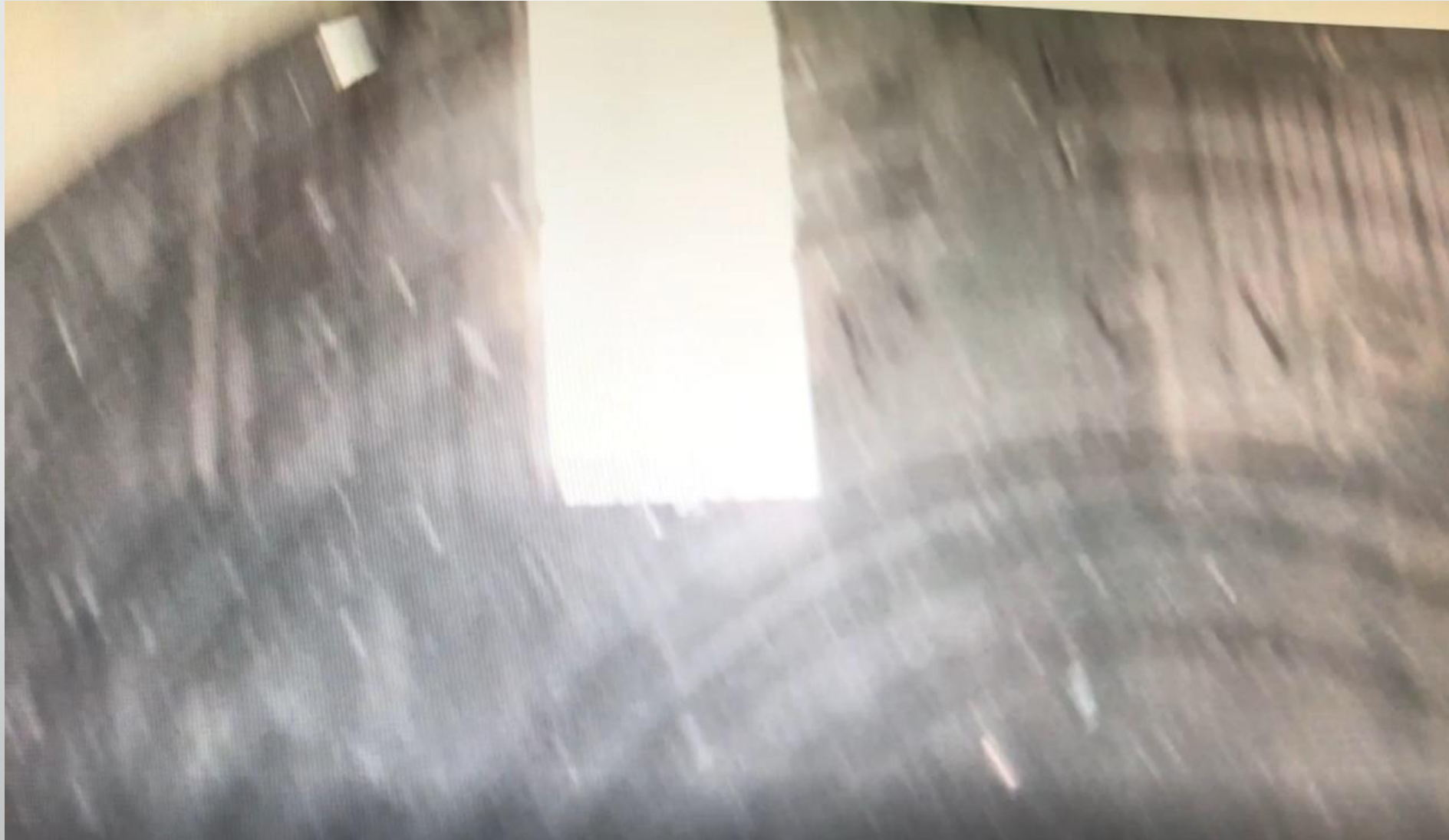
*Thanks to Eric Dupre for permission to use this video.*

# Video of Watertight CAP Covers

**Floods & Tides Not  
Only Cause of  
Submerging Covers**



Merely installing below  
grade can cause  
submerged situations





**PROVEN TEST RESULTS OF ZERO LEAKAGE**

**DOCUMENTATION OF I&I REDUCTION**

**SHOW YOUR EFFORTS TO  
STATE AND FEDERAL AGENCIES**



# San Antonio Water Systems (SAWS) CAP 0.00 Gallons per Minute Validation



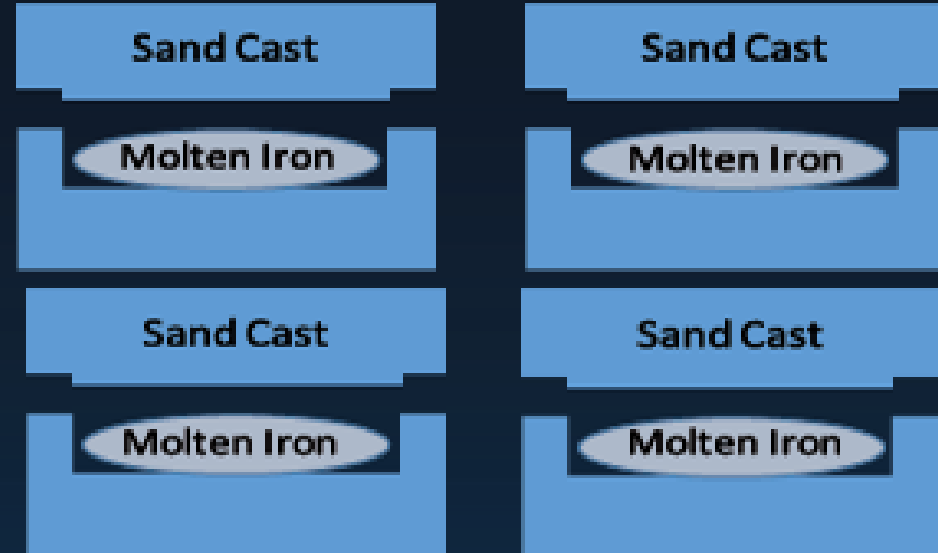
# Composite Compression Molding vs Iron Forging Allow for Tighter Design Tolerances

## 1 Composite Molding Vs. Iron Casting...

One Mold for ALL Covers and Frames  
Eliminates Part-to-Part Variation

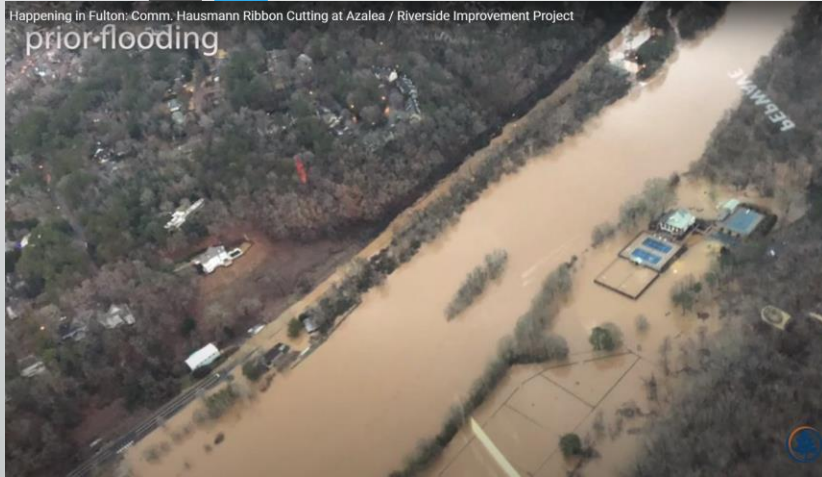


Different Casts for EACH Cover and Frame  
Introduces Part-to-Part Variation





# CASE STUDY: FULTON COUNTY, GA ELIMINATES SEWER OVERFLOWS INTO CHATTAHOOCHEE RIVER



"We have recently experienced a large rain event and for the first time in the history of the county we had no sewer spills, none what so ever. It had been an ongoing problem for over 30 years and we are proud, through a team effort, to have reached that milestone."

-Roy Barnes

Deputy Director Public Works (May 2021)





# Gift the Keeps on Giving

**MUNICIPAL**

**SEWER & WATER™**

FOR SANITARY, STORM AND WATER SYSTEM MAINTENANCE PROFESSIONALS

October 2021 [www.mswmag.com](http://www.mswmag.com)

**BETTER MOUSETRAPS: ONLINE DATA MANAGEMENT FOR FOG**  
PAGE 00

**HUMAN SIDE: FIGHTING WORKPLACE RACISM**  
PAGE 00

**STAYING SAFE: LIGHT THE PATH TO SAFETY**  
PAGE 00

## SHUTTING DOWN INFLOW

Georgia utility finds a watertight manhole solution that puts an end to chronic SSO problems

PAGE 00



Roy O. Barnes Jr., Deputy Director of Sewer and Wastewater Treatment Operations, Fulton County, Georgia

**"It was the first time in the history of the county that we had no reported spills."**

**— Roy Barnes**



Happy equipment operators Jonas Tolson (left) and Jerry Jones remove one of the new watertight manhole covers from Composite Access Products. Fulton county replaced 19 old manholes for *Resilient Parks* to eliminate inflow and infiltration. (Photography by Gidrop)

## SHUTTING DOWN INFLOW

Georgia utility finds a watertight manhole solution that puts an end to chronic SSO problems

By Kyle Rogers

**"Typically that spill or resulted in large spills in that area. But we had zero spills."**

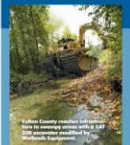
**— Roy Barnes**

**Spreading the word**  
Fulton County Public Works crews are helping other utilities that are experiencing similar spill events.

**Traversing the Swamp**  
To maintain healthy, Fulton County Parks has been protecting long-term, as well as the swamps that are vital to the environment.



**Spreading the word**  
Fulton County Public Works crews are helping other utilities that are experiencing similar spill events.



**Traversing the Swamp**  
To maintain healthy, Fulton County Parks has been protecting long-term, as well as the swamps that are vital to the environment.

**"It was the first time in the history of the county that we had no reported spills."**

**— Roy Barnes**

**Resilient Parks**  
Fulton County Public Works crews are helping other utilities that are experiencing similar spill events.

**Public Works**  
Fulton County (Georgia) Public Works



**Resilient Parks**  
Fulton County Public Works crews are helping other utilities that are experiencing similar spill events.



**Public Works**  
Fulton County (Georgia) Public Works

**what we've learned is you definitely need to address the low-hanging fruit, the known areas of I&I."**

**— Roy Barnes**

**swampy terrain. Wetland Equipment Company, based in Thibodaux, Louisiana, manufactured the machine.**

"We're the first in the state of Georgia to have it," says Roy Barnes, deputy director of sewer and wastewater treatment operations. "We have a lot of swampy areas in the lower part of our county, and it has been impossible to access those manholes in the middle of swamps. With this machine we can go and rehab those manholes and make them watertight to stop the inflow."



The Fulton County Wastewater team includes (from left) heavy equipment operator Jerry Jones, construction manager Steve Jackson, Deputy Director Roy O. Barnes Jr., senior crew supervisor Craig Daniels and heavy equipment operator Jonas Tolson.

ation about the utility's work at the Water Environment Federation's Technical Exposition and Conference in the future.

"What we've learned is you definitely need to address the low-hanging fruit, the known areas of I&I. That's kind of common sense, but it's important. If you interview your frontline staff, they'll show you the problem areas," Barnes says. "If you do flow monitoring, look at the data. Try to address the areas where you know there is a lot of inflow."

And from there, CAP's composite rings and covers have Barnes' endorsement as a solution to putting an end to that inflow, the cause of so many problems like chronic SSOs. His crew like them too.

"They're much lighter, they're easier to work with, and they do what they are supposed to do. They keep the water out," Barnes says. ♦

**FEATURED PRODUCTS FROM:**

**Composite Access Products (CAP)**  
800-321-7212  
404-344-2277  
[www.justcap.com](http://www.justcap.com)  
(See of page 0)

**Prime Resins**  
800-321-7212  
404-344-2277  
[www.primeresins.com](http://www.primeresins.com)  
(See of page 0)



# I&I Costs of Standard Covers Solve by CAP Covers...Beyond the Price Tag

- \$ Rain Guards to reduce I&I (\$50-\$160 per unit)
- \$ Added Wastewater treatment operation costs
- \$ More electricity cost for higher than needed pump run times
- \$ EPA fines from SSO events
- \$ Higher capital investment to manage I&I rainfall peaks with larger treatment capacity

## 2. AVOID CORRODED IRON

POLYMER SOLUTIONS HAVE BEEN IMPLEMENTED THROUGHOUT SANITARY COLLECTION SYSTEMS TO RESIST HYDROGEN SULFIDE EFFECTS (E.G. Cured in Place Piping (CIPP), FRP MANHOLES, FIBERWOUND TANKS, POLYETHENE RISER RINGS, ETC.) - MANHOLE COVERS ARE NEXT



# **Corroded Iron Covers Stick to Frames Requiring Unsafe and Damaging Practices**





# H<sub>2</sub>S and Subsequent Impact Mechanically Degrade Covers and Frames



Hammer Time!

The seat for the cover is completely degraded and the frame ID is flush. The Cover is virtually riding on air!



Recent photo of Iron Cover Dropping into Corroded Iron Frame





# EXTEND SEWER LIFE WITH CAP

## After Eight Months in the Sanitary Sewer...

*(Mechanical Property Lab Test Specimens Shown Below)*

### Traditional Manhole Cover Material - Cast Iron



### Manhole Cover Material - CAP Composite



## Are manhole covers in your city's roads still traffic-rated?

*NOTE: Both test bar specimens were hung in the same actual sanitary sewer exposed to extreme - but realistic- conditions (~ 2000 ppm H<sub>2</sub>S) to provide an accelerated life test for corrosive sewer environments. May not be representative of all manhole cover locations or traditional cover materials. Traditional cover material results may also differ by manufacturer, processes, and post-process treatments.*



# 3. ELIMINATE ROOT CAUSE OF THEFT : SCRAP METAL CONTENT

THIEVES STEAL COVERS FOR MONEY THEY CAN GET FROM SCRAP YARDS – THIS RESULTS IN A POTENTIAL PEDESTRIAN DANGER IN ADDITION TO MUNICIPAL COST. COMPOSITE HAVE NO SCRAP VALUE AND ELMINATE ROOT CAUSE.



# Theft for Recycle Metal

- Theft of Metal Covers costs hundreds of millions of dollars per year. A replacement cover costs \$300-\$800 (depending on install cost)
- *Composite covers have no recycled value.*



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HOME OF KBAK & KBFX EYEWITNESS NEWS

News Weather Sports Entertainment Communities Contests EVENTS EYEWITNESS

### Big expense, danger from rash of manhole cover thefts

By Carol Ferguson, Eyewitness News | Published: Jan 29, 2013 at 4:16 PM PST | Last Updated: Jan 30, 2013 at 9:28 AM PST

Recommend +9 +1 Tweet 0 Comments Print Email

BAKERSFIELD, Calif. (KBAK/KBFX) - Manhole covers and sidewalk sewer lids are being stolen across the city. Bakersfield street crews say more than 60 have turned up missing in the last few months. Eyewitness News discovered many of the covers are in local sidewalks, and when they're stolen that causes real danger. Also, these covers are expensive to replace.

Bakersfield street superintendent Mike Connor said people started to call and report the missing covers, and at least twice someone fell into an opening left in the sidewalk.

"They were walking along, and they weren't paying attention, and they fell in," Connor explained. These are covers to storm drain "catch basins," and below the lid there's an area that can be two to 15 feet deep, he said.

# Pedestrian Hazards

## Woman dies after falling into Baltimore manhole

UPDATED 5:59 PM EDT Jul 11, 2016

Text Size: A A A



**LIVE. LOCAL. LATEBREAKING.**

Woman in Serious Condition After Being Rescued From Manhole



**BALTIMORE** — Fire officials say a woman has died after falling and becoming trapped in a manhole near downtown Baltimore.

HOME > NEWS > LOCAL

Posted: 4:41 p.m. Thursday, Feb. 21, 2013

## Campaign worker who fell in manhole reaches settlement

Email 17 Share 107 Tweet 18 ShareThis 248



WSB-TV

Denethia McCall says she fell in an open manhole on Joseph E. Lowery Boulevard in southwest Atlanta.

### Related

View Larger



WSB-TV

Denethia McCall says she fell in an open manhole on Joseph E. Lowery Boulevard in southwest Atlanta.

**ATLANTA** — A woman who said she was seriously injured when she fell into an open manhole while campaigning for Atlanta Mayor Kasim Reed has reached a settlement with the city.

Denethia McCall told Channel 2's Rachel Stockman she was walking along Joseph E. Lowery Boulevard in southwest Atlanta while canvassing the neighborhood on behalf of Reed.

McCall said there were a lot of leaves on the ground and she fell into the uncovered manhole.



# October 19, 2017

FPH



NEWS

**Houston Man Stuck in Manhole for  
Nine Days Tells His Story**



# 4. SAFE LIFTING WEIGHT







# Lifting Safety

32 inch cast iron cover is **190 lbs – 300 lbs!**  
***This is unsafe!***

***A 32 inch composite cover is 55-110 lbs.***

***A 24 inch composite cover is 40-80 lbs.***

***Fact:***

Calculated Cost For Each Back Injury Incident:

**\$70,000!!!** (Southern California Edison)



*Special Lifts...But Now  
how to get to and from the  
truck bed? And Cost?*



# Quick, Safe, and Easy of Install – Cost



- Eliminate Cranes, Attachments to Lift Frames and Covers
- Decrease Labor times for each install
- Reduce time to coordinate and locate all these resources
- Reduce injuries of hands, toes, backs

CAP's frames are between 40-50 lbs. This allows an individual to carry two (one per shoulder) at one time from stock yard, truck, and to the install location.



# Costs of Iron Covers That Are Removed or Reduced with CAP...Beyond the Price Tag

## Corrosion Costs

- \$ Anti-corrosion coatings
- \$ Replacement Costs for Corroded Covers (parts, labor, traffic control)
- \$ Labor and Worker Injury Costs when fighting to open corroded covers
- \$ Skipped maintenance due to frozen covers

## Theft Costs

- \$ Replacement Costs for Stolen Covers (parts, labor, traffic control)
- \$ Public Relations Shame and Embarrassment (of pedestrian injury from falls, burns, shocks)

## I&I Costs

- \$ Rain Guards to reduce I&I
- \$ Added Wastewater treatment operation costs from I&I
- \$ EPA fines from SSO events
- \$ Higher capital investment to manage I&I rainfall peaks with larger treatment capacity

## Heavy Cover Costs

- \$ Workman's Comp. and Disability Costs from back, finger and toe injuries
- \$ Specialized Lifting Tools for heavy covers
- \$ Employee Morale
- \$ Installation Speed, Capital, Labor, Workman's Comp.,

# 5. TRANSMISSION OF DATA

TO ACHIEVE "SMART INFRASTRUCTURE" MANY METERS AND SENSORS ARE BECOMING AVAILABLE TO RECORD AND ALERT MUNICIPALITIES OF SEWER / UTILITY HOLE CONDITIONS. METAL BLOCKS TRANSMISSION SIGNALS REQUIRING HOLES DRILLED THROUGH THE SURFACE (ALLOWING I&I). COMPOSITES ARE TRANSPARENT TO TRANSMISSION SIGNALS.



*I stood on it for an hour  
Nothing happened...*

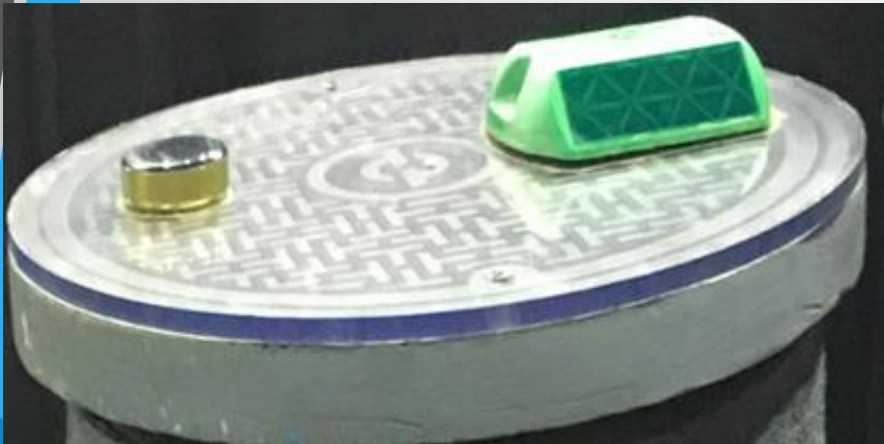
They should have "Just CAP That!"



# Wave Permeability



**No antennae,  
antennae holes, or  
antennae protectors  
needed!**

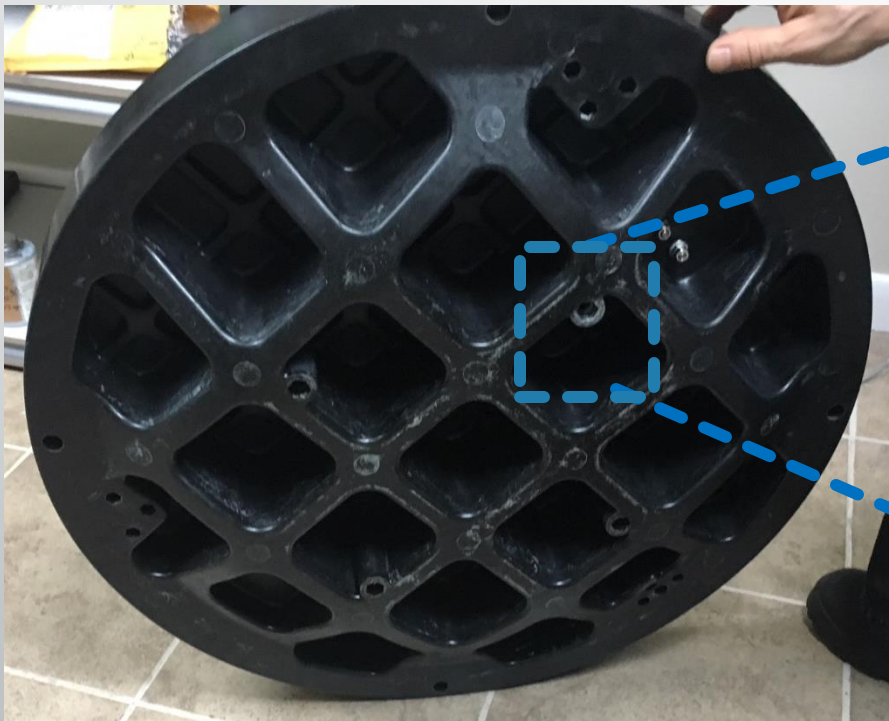


**Waves Transmit  
Through Composites  
But Absorbed by Iron**

**Photo Shows Antenna Penetration from Underside and  
Recommended "Shields" to Protect Antennae**

# Molded-In Attachment Points for Added Technology

- No Drilling, Screwing, Machining Needed





# Cellular Transmission Through CAP Cover (No Antennae Hole) Validated in Abilene, TX





# Recent Case Studies: Water Covers

- McKinney & DFW TX, Q1 2021, Made CAP cover of choice for water maintenance vaults. CAPs on underground valve/meter access points watertight eliminates need to “dewater” before entering.
- Irving, TX – Q2 2021, Tested CAP for use of their AMI meter/transmitters under the cover without an antennae hole. They confirmed successful data transmission at multiple locations.





# 6. SUSTAINABILITY AND CARBON FOOTPRINT

# Energy Consumption & Carbon Footprint



- Iron Melts for Casting at around 2700F
- Thermoset Composites are molded around 275 F
- Most iron foundries burn “coke” – a high carbon content fuel source – for the energy.
- Upstream composite raw material streams use mainly natural gas for energy.
- A larger energy consumption + carbon fuel source = a greater carbon footprint.



# Many Other Environmental Impacts

**CAP processes reduce hazardous chemical emissions.**

(Some casting processes produce dangerous toxins: carbon monoxide, hydrogen sulfide, sulfur dioxide, nitrous oxide, and benzene – a known human carcinogen)

**US reporting and regulations for disposal, emissions, clean energy.**

(e.g. many traditional covers made w/o US regs)

**No chemical coatings for corrosion resistance.**

(e.g., Coal tar coatings: carcinogen, kill aquatic life, banned in several states and cities. USGS)

**Watertight to help reduce the #1 cause of water pollution– SSOs**

**CAPs can be recycled though there is no scrap market like metals.**

(e.g. solid surface and cultured marble products. Reground composite used in GM 3800 valve)

# CAP INNOVATIONS – DISRUPTING A 180 YEAR OLD INDUSTRY

- CAP HAS INTRODUCED A THERMOSET COMPOSITE OPTION THAT IS STRONG ENOUGH FOR TRAFFIC LOADS. IN ADDITION TO THE BASIC ADVANTAGE OF COMPOSITES, MANY CAP INNOVATIONS ARE NOW POSSIBLE TO ACHIEVE THE SMART INFRASTRUCTURE OF THE FUTURE.



# CAPS ARE THERMOSET FIBERGLASS (NOT "PLASTIC")

## Thermosets (CAPs)

Examples: Unsaturated Polyesters, Vinyl Esters, Phenolics (Bakelite), Urethanes, Epoxies, Silicones, Urea,



Irreversible Cure – Like Boiling an Egg

## Thermoplastics

Examples: Polypropylenes (PP), Polyethylene, Polyvinylchloride (PVC), Polycarbonate, Nylon,



Phase Change – Like Melting Ice

**THERMOSETS = STRENGTH, RIGIDITY, DIMENSIONAL STABILITY,  
LOW WATER ABSORPTION, THERMAL RESISTANCE (-60 TO 360  
F)...DO NOT MELT, CREEP, EXPAND, CONTRACT**



# Proof Load Testing



Photo Show CAP's Onsite  
Proof Load Test Equipment

- AASHTO H<sub>25</sub> PROOF LOAD TESTING –  
Independent Lab (UTRGV)

**“Passed with flying colors”**

- Cover Resists More than 100,000 lbs!

**“Cover shows... remarkable  
retention of strength”**

Dr Robert E. Jones

Professor

Undergraduate Program Coordinator

Department of Mechanical Engineering

(956) 665-5019 [robert.jones@UTRGV.edu](mailto:robert.jones@UTRGV.edu)

Brownsville • Edinburg • Harlingen

# In the Roadway





# Largest Mold Insert Space for Intricate Molded-In Logos



- Most pronounce tread and graphics of all composites
- Depth not possible with RTM (other US composite manufacturer)



# Various Utility Indicators







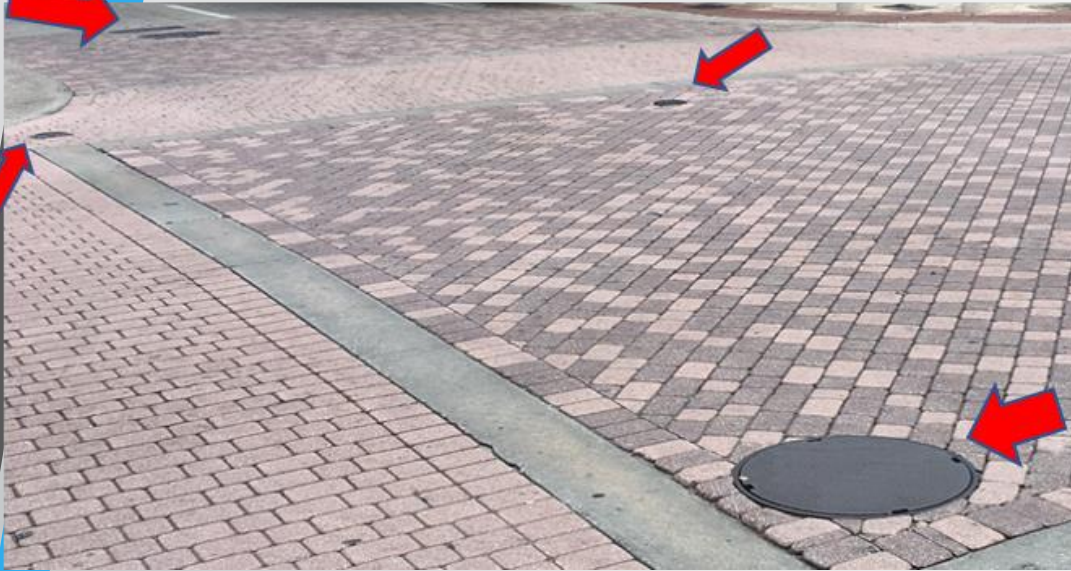
# Different Colors!



**Not Merely Paint on The Surface Waiting to Rub Off...  
But Mixed Throughout the Entire Compound!**

# Cosmetic Options

## The CAP STONE: Granite, Desert Stone



**Pavestones Caught the Chicken Pox?**



**Bringing Beauty to Infrastructure!**

(Not Offered By the Other Composites)





# Blended Cosmetics - Not Paint!



Many Stone Color Tones Available

Impossible with Iron!



# Metal Detected Composite Covers Possible! (Proprietary Technology Allows Detection)







# CAP RF - Encapsulated Radio Frequency IDs!

(Patent Pending)

## Introducing The CAP RF

Composite covers with encapsulated radio frequency identification

- Asset tracking
- GIS Compatible
- Information available at fingertips
- No exterior antenna wire, battery, fasteners
- Molded-in Protection: RFID Will Not Corrode or Break off

All without opening the cover



RF Scanner

Just CAP That!



Innovation, Infrastructure, Made-In-The-USA



# Impossible with Iron!



# Both Bolt & Paddle Lock Options

## Threaded Bolts

4 Bolts – 3.5 " x 1/2" 13  
316 SS Austenite with  
1/2" Allen Head  
Standard

*Best for I&I Resistance*

OR



## Paddle Locks

1 standard, all 316  
stainless

Allen or Pentahead  
Quarter turn latch

*Best for Fast Open*

# Protective Pick Hole Clips For Both Side Pick Notch and Top Pick “Hook”



- Shields on pick lift areas to protect from the over aggressive user with a sharp metal pick



- Top Hooks New Option on CAP ONE – 24. All features Molded In, NOT Machined



# MADE-IN-THE-USA

- US Taxpayer Dollars for US Taxpaying Companies
- Batch to Batch reports?
- Improper Markings
- Test Data?
- Consistency?
- Robust Design?
- Lead Times?
- Liability? (e.g. Lumber Liquidators)
- Environmental, Safety, Health Standards – Serious about municipal codes, but buy from those who don't follow those same codes?





# Compression Molding



**800 tons of pressure at 300 F – 16 minutes**

- **High Volume, Affordable and Quality Production**
- **Capital Cost for Press and Molds Very Expensive**
- **Materials Preblended – avoid lack of glass impregnation**

# CAP Compression Molded Composite Manhole Cover and Frame



- Molded with hundreds of tons of pressure
- Raw material preblended
- Continuous AND Short Fiber for both Structural and Surface Strength
- Fiber filaments completely impregnated – not sheets of fiberglass
- No layers, no delaminating
- No voids

# Other Composite Process

## “Resin Transfer Molding” (RTM)

- Sheets and Layers of Fiberglass are Stacked
  - Low/No Pressure Mold
  - Resin is sucked or pushed in chamber to impregnate fiberglass
  - Resin flows through fiber layers and around features
  - Resin Cures with low/no temperature with a chemical “exotherm” playing a role in process
- Parts are demolded carefully to avoid surface defects





# Lighter than Iron, But Not Frisbees! (Frisbees fly)



- CAP makes the heaviest composite cover but still half the weight of iron
- Resin Transfer Molding (RTM) vs. Compression Molding – strength to volume higher, but at the same strength, this just means it is smaller and lighter
- Deep cover walls also reduce potential accidental cover ejection

CAP

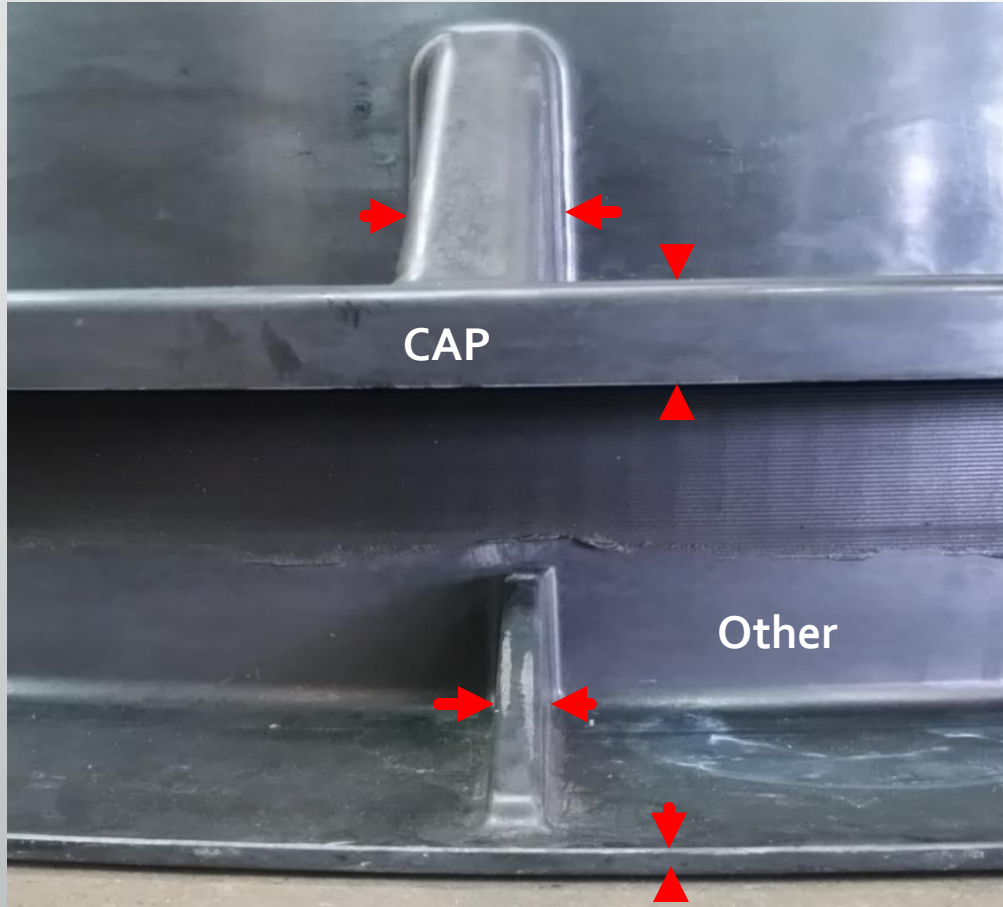
OTHER

78.5lbs

38.0lbs



# CAP Frames Contains Over 50% More Material



CAP  
47.5lbs



OTHER  
30.5lbs



(24 inch Clear Opening)



# Attractive Logos With Sharp Detail

CAP's Molded-In Graphic Logos



- Compression Allows Deeper Tread, Graphics, Text (between .100 - .125 inches deep)
- Other Compression Option Tread is about .03 inches deep (1/3-1/5<sup>th</sup> as deep)
- Graphics molded in with CAP. Not Surface Decals that can wear off like other
- Angles of detail can be sharper with Compression Molding. RTM requires more rounded edges.

Other Composite Shallow Surface



CAP's Detail 4x More Pronounced





# Surface Integrity of RTM vs. CAP



- RTM surfaces can be “resin rich.” This means fiberglass may not compose the surface. Resin rich areas of RTM can be weaker, blister, wear off faster
- CAP Compression Molded Covers have filaments of fiber reinforcement blended throughout the substrate – no resin rich surfaces

# VENTED CAPS ALSO AN OPTION!



Photo on Right:

Underside of CAP has structural ribs providing traffic rated strength. Vent holes and hardware holes are placed outside of these supports to maintain strength.

- CAP Vent Holes Molded-In... NOT Drilled
- Holes located on nonstructural areas
- Not Available / Possible with Other Composite –
  - Would Likely be Post Process Drilled
  - Could Affect Strength

# ALL CAPS HAVE METAL DETECTION ENCAPSULATED IN SUBSTRATE

- Composite nor Stainless Steel Can be Metal Detected
- CAPs can be metal detected at least 6 feet away
- CAP uses proprietary technique to encapsulate technology – protecting from impact or chemical attack
- Other Composite may attach non stainless with screws or glue – will corrode or detach!



CAP's encapsulated technology – not attached – protected from impact and chemicals



# CAP's Have an "Burping" Option: Can Relieve Surcharge without Ejecting the Cover



photo shows upward water flow through the cover and frame



Other Composite:  
Fastener Not  
Spring-Loaded

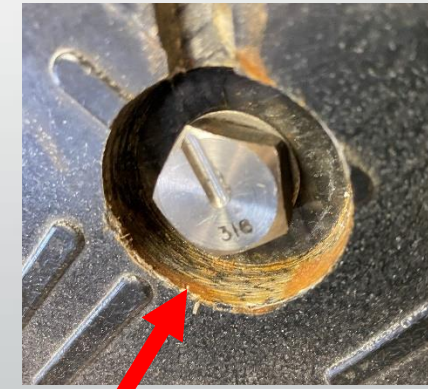
- CAP makes "burping" covers as an option. If you want to prevent surcharge from entering residences or businesses
- CAP's spring-loaded latch option allows upward flow out of the system while keeping the cover hooked to the frame.
- Upward pressure compresses spring, opening gap between cover and frame
- Other Composite Covers do not have spring-loaded locks
- If you don't want a burping cover, we can always provide our 0.00 GPM watertight model.

# CAP Molded Hardware Holes & Connection Points

- All holes and channels are molded in, NOT drilled and machined like Other Composite
- Machining composite surfaces exposes glass fiber filaments that will “wick” the rainwater affecting product life
- Molded holes and features maintain protective surface of resin.



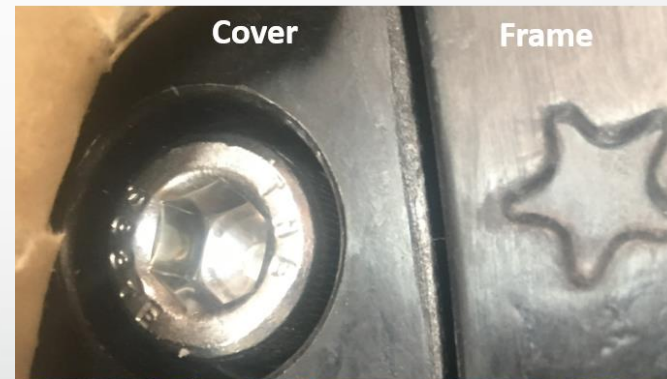
CAP Molds-in Features Protecting Fiber



Other Composite Cover shows post-process machining of the fastener holes. Glass Fiber can be seen exposed.

# CAP Hardware Accessories

- All CAP metal hardware is 316 Stainless Steel to Prevent Corrosion
- All CAP threaded bolts and nuts are Xylan coated to help prevent galling or stripping of soft stainless-steel during overtightening
- CAP frames are molded with hardware alignment indicators

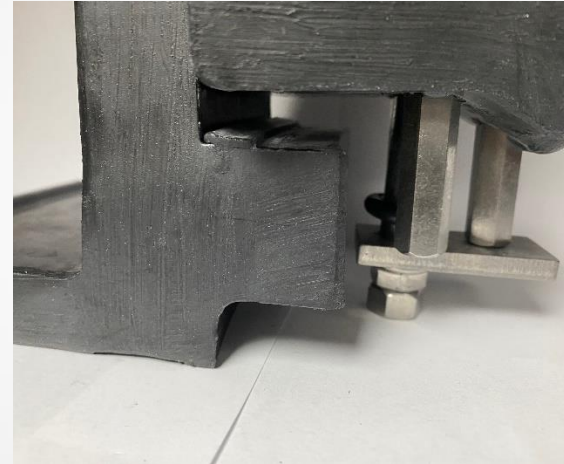




# Fastening Systems: More Options, Robust Design

- CAP offers both threaded bolt (best for watertight) and also quarter turn latch (best for quick entry/exit)
- CAP's latch system has security pins to prevent disengaging locks during potential cover rotation
- CAP offers three fastener head options (hex, allen, penta)
- All Hardware Comes with Dirt Shield Covers

Paddle Unlocked



Paddle Locked Secured w Pins

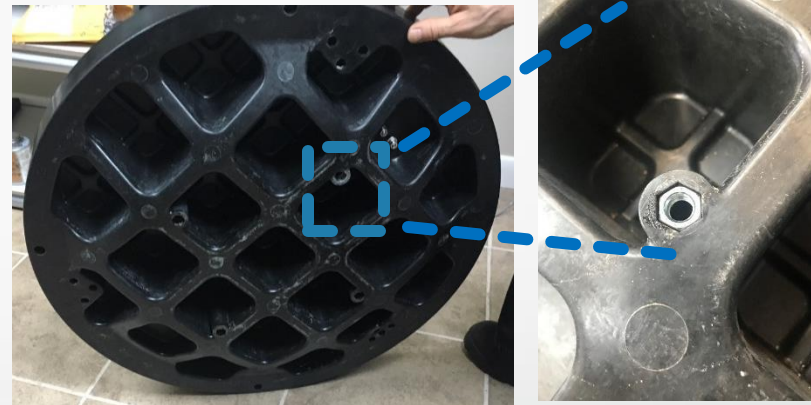


Bolt and Paddle Head Options



# CAPs have molded in attachment points to bolt on sensors

- Holes on Cover Underside to add threaded inserts – molded, not post process drilling
- Mechanical locking anchor to prevent detachment of expensive technology hanging from cover
- Other Composite cover does not have this option – must screw or drill into composite exposing fiber filaments



# Product Traceability

- CAP Molds-In Manufactured Dates
- Every Cover Can Be Traced to Process Detail, Inspections, and Raw Material Lot Numbers
- Permanently Inscribed Compliant to AASHTO Standards for Marking

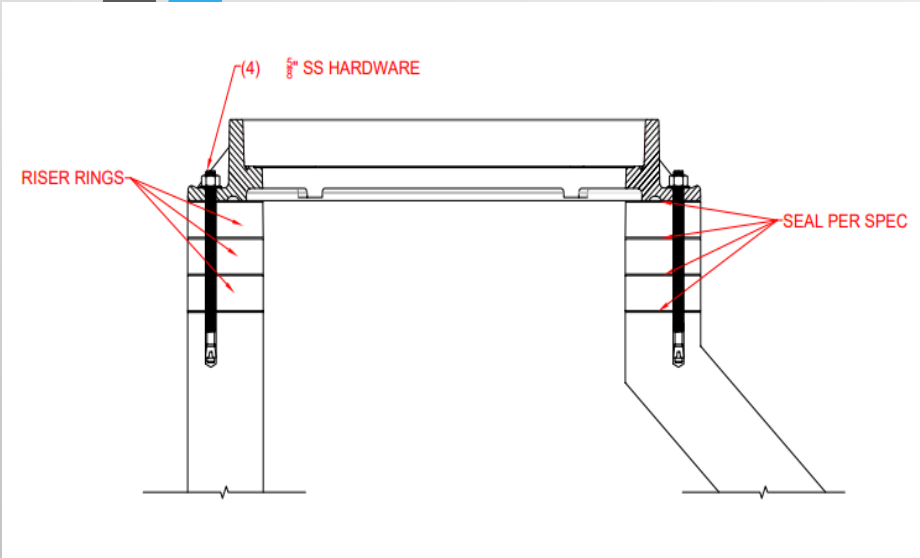
Not Drawn with marker or machined







# Mounting and Anchoring Assembly



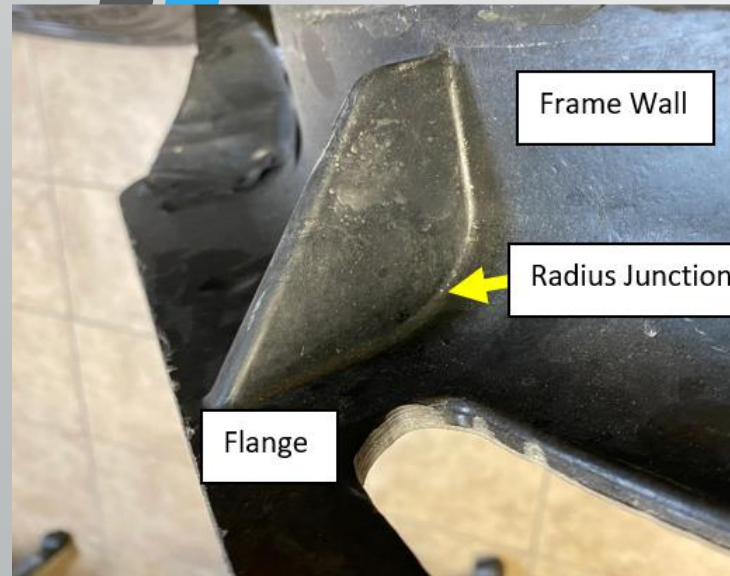
- Flange Fits Most Riser Rings
- Anchor through molded in flange holes



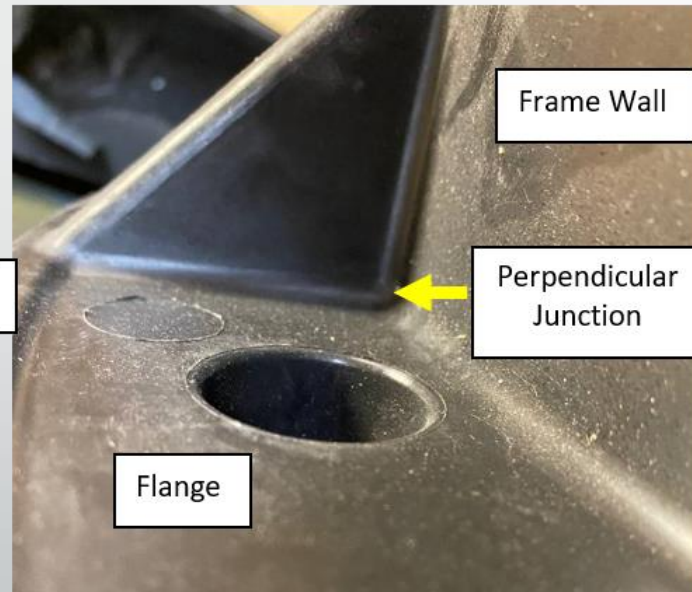


# Washer and Nut Sit Securely with more Perpendicular Frame Flange – Wall Joint

Competitor's Radiused Flange-Wall junction



CAP'S Perpendicular Flange-Wall junction



CAPs Frame Allows Seat for Nut & Washer





# Production Lead Times- Days/Weeks, Not Months



**Fun Fact:**  
American made  
products don't get  
stuck on cargo  
ships... 🇺🇸



# NEW PRODUCT LAUNCH: CAP ONE -36



- 41" cover, 2" thick
- Est. 170 lbs
- H-25 +
- Top Hook
- 4 Bolts OR Paddle Locks
- 3 custom logo locations
- Metal Detectable



# References From Major Specified Municipalities



## Fulton County, GA

Roy Barnes

Deputy Director Reclamation

[roy.barnes@fultoncountyga.gov](mailto:roy.barnes@fultoncountyga.gov)

(404) 360-6895

## City of Fort Worth, TX

Bill Lundvall

1608 11<sup>th</sup> Ave.

Water Systems Superintendent

Fort Worth, TX 73102

Cell 817-996-5848



## City of Chandler, AZ

Alvin Robertson

Wastewater Collections Superintendent

(480) 782-3596

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Thank you!



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