



LIFE20 GIE FR 282 - RE-PLAN CITY LIFE

RElevant Audience Plan Leading to Awareness Network for Circular Economy Use of Recycled TYre materials in city LIFE

Committee of the Regions Workshop for Campania Region Local Administrators

Campania is a region in southwestern Italy known for its ancient ruins and dramatic coastline. Naples, the regional capital, is a bustling city with a striking natural setting between the iconic gray cone of Mt. Vesuvius and the deep blue waters of the Golfo di Napoli. To the south, the Amalfi Coast is home to pastel-hued towns such as Positano, Amalfi and Ravello, nestled between cliffs and the sea.

The Romans knew the region as Campania Felix, which translates into English as “fertile countryside” or “happy countryside” as it was the most fertile area harvesting and supplying food to Rome Empire as well offering attractive holidays locations to Roman Nobleness thanks to the beauty of the places and the mild climate.

Over 50 among Majors, Councillors, and Public Officials coming from Municipalities and local bodies of the Campania Region left for few days their sunny landscapes to come to Brussels to take part to a training event organised by EIPA, European Institute of Public Administration held at the Committee of the Regions from 22 to 24 November.

The event was supported by Brussels Office of Campania Region, who included this event in the frame of a wider training program aiming to stimulate an active use of the EU funding instruments to create opportunities of developments for the rural areas.

The objectives of the workshops and background policies were deeply described by on. Nicola Caputo, Counsellor at Agriculture of the Region and by dott. Nicola Oddati, director of the Region’s Brussels Office, in two separate speeches.

The event, titled “Communication action aimed at disseminating the opportunities of European funds and the activation of exchange paths of good practices”, has been designed to allow a strong interaction between speakers and participants.

The face to face module was indeed very lively and provided participants with an in-depth analysis of European policies and programs of relevance for the Campania Region in the context of European funds. Alongside European policies and strategies, the module also combines the first experiences from ESF+/EAFRD programming but also from complementarities with direct funds in the fields of training/education and agriculture. The course also includes a direct in-depth study of design methodologies. Speakers from European institutions and interest representatives in Brussels will participate to share good practices.

Ettore Musacchi, Coordinator of RE-PLAN CITY LIFE project took part as speaker to present the project and explain to the audience the many possibilities of using the Recycled Tyre Materials (RTMs) and the other opportunities for local bodies. This was a perfect context for the Replan project and the presentation raised great attention and a lot of demands which were also addressed during the breaks and networking moments.

It was exciting to see how much motivation and sensitivity to Environment and to Circular Economy principle drive the policy of Local Administrators who were interested to have a future follow up to explore more in detail solutions suitable for their administrations, spanning from Sports Facilities to Roads Constructions.

The training session included:

- Update on European policies in the fields of training, education and social innovation and rural development
- The innovations in the ESF+ compared to the ESF and the EAFRD and the critical points of the European and NGEU/PNRR planning
- In-depth study of design techniques, financial management
- Visit to the European institutions (European Parliament in Brussels, Committee of the Regions, Permanent Representation of Italy to the EU) Course recipients Group of political-administrative level officials of the Campania Region (Agriculture Training Department).

The rich program and the quality of speakers made the event successful not only in providing valuable knowledge but also to open up potential opportunities for future cooperation.





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The European Commission has established that for the next twenty years it will be possible to play football on artificial grass pitches infilled with rubber granulate obtained from tyre recycling

This is what follows from the logical application of the decision adopted on 26 September 2023 to ban the sale (not the use) of polymeric materials for infill, starting from 15 October 2031.

Considering that the average life of an artificial pitch is at least 10-12 years, most of the pitches that will be installed in the next 8 years, for replacing pitches at the end of their life or for new systems, will still be in operation in 2043.

Children born today will be able to play football until they reach adulthood and then they will still have two years, in which as adults they will be able to look around and become aware of the world in which they live and make the choices they deem appropriate.

More information and data relating to the actual release of microplastics from the various sources will be available, while today they have been just estimated and are not always accurate and reliable.

This was not an easy task for ECHA which is often asked to express its opinion on the most disparate issues, from microplastics to the use of certain materials in the space industry. From the infinitely small to the infinitely large.

The microplastic issue is a highly complex one, whose real dimensions, impacts and possible solutions are far from being clarified. It is an infinite topic in itself. The more possible current sources are identified, the more the development of new products and technological innovation can create new ones. At the same time, it is certainly an issue that has a great impact on citizens who, although responsible for the pollution of the planet with their behavior, would still like not to suffer its effects and be able to count on a reduction in any consequent exposure.

Therefore, despite the responsibility of every citizen for the uncontrolled release into the environment every year of 1,000 grams per capita of micro dust (or more precisely nano dust) resulting from the abrasion of tires on asphalt, it is rather blamed the release of 30 grams per capita of 1-2 mm rubber granulates used for infilling artificial grass, which drops to 3 grams thanks to simple containment measures to be applied to the fields as well as more careful and responsible behavior of those who plays on those fields.

It doesn't matter if as a result of the transition to mobility with electric cars there will be an increase in tire consumption and related micro dust emissions, football pitches are pointed out as the main culprits. Since the infinitely small and the infinitely large are difficult to understand, it was chosen to focus on the infinitely medium, either referring to the dimension of particles or to the social context, which are more easily understandable and communicable.

The use of artificial grass pitches is the prerogative of the harassed middle class who do not have access to natural grass pitches, use public transport more and will hardly be able to afford an electric car in the future. Our young athletes don't even use cars and belong to a generation that seems to be able to do without them even when they reach adulthood.

Furthermore, it remains to be seen what the world and mobility will be like in 18 years. They will have greater tools and knowledge to evaluate and compare the overall impact of artificial fields, not only with regards to microplastics, but also CO2 emissions, and other environmental, medical, social indicators deriving from sports practice.

It is probable that they will not agree to give up practicing sports by virtue of decisions, taken before they were born and on the basis of questionable assessments, to combat pollution caused by other sources and other subjects. Not only because it would be serious and unfair, but because sport is now perceived as a right codified in many systems, with different formulations whose meaning can be summarized more or less in the following formulation:

“Sport must be guaranteed to all children and adolescents because it is good for the body, mind and character, promotes socialization by helping to break down barriers between oneself and others, reduces people's selfishness, encourages new friendships and the ability to collaborate, helps to get to know each other”.

In the next few years, a frighteningly high number of football pitches will reach the end of their life and will have to be redone, millions of square meters, which would be logical to redo by recycling as much as possible, directly on site, the materials already used for the construction of the same pitch, and where not suitable or sufficient, use additional materials always coming from recycling chains.

Over twenty years ago, the tire recycling sector contributed to the development of artificial grass pitches, making them high-performance, accessible, sustainable and encouraging their diffusion, to the detriment of virgin materials and more expensive techniques.

Now, due to a heterogeneity of purposes, there is a risk that less sustainable materials will regain space and occupy a market that did not exist, created thanks to recycled materials. Instead of consolidating the principles of the circular economy, we risk to assist to a U-turn in the direction of the linear economy: disposal of old fields instead of re-use and recycling of materials, new fields with lower performance, shorter duration, more expensive materials that require long-distance transport, increased costs and greater CO2 emissions.

What to do?

It must be clear and reiterated that for the next 8 years the fields can and must be made with recycled rubber infill material and that they can remain in regular operation until they reach the end of their life.

Furthermore, rubber granulate is an excellent material for the creation of Elastic Layer which is not affected by the restrictions for microplastics as it is agglomerated with binders. Tire recycling sector is a dynamic and creative sector and is already committed to developing new solutions for both the sports sector and others. It always has and will continue to do so.

In the meantime, it is advisable that these fields be always done with suitable containment measures which have now become good and consolidated practice. This represents not only a clear signal of responsibility and coherence, but a necessary premise for sustainable supply and management over the next 8 years and the subsequent life span of the fields.

We don't know what will happen in the next twenty years, but if the alternatives that the legislation now considers compatible prove to be insufficient or unsuitable, the sector will have the credibility and data in hand to discuss the issue again.

In twenty years the new generations will have a voice to say what world they want to live in and we won't be able to stop it.





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Circular Economy and Urban Environment: RE-PLAN CITY LIFE - the European project promotes the use of materials derived from recycled tires at RESTRUCTURA in Turin

The use of materials derived from the recycling of tires in construction was one of the themes of Restructura 2023, the exhibition and conference event held in Pavilion 3 of the Lingotto Fiere in Turin from 23 to 25 November. Re-Plan City Life, the European project co-financed by the Life20 program, intervenes on the topic at the Circular Economy in Construction Conference for environmental sustainability organized by ANTEL (National Association of local authority technicians).

There are many possible uses in construction, for example in concrete, where steel fiber as a replacement for iron bars brings high performance with a considerable reduction in CO2 in the production process. Same thing in the manufacture of acoustic insulation sheaths and much more. The use of materials recycled from rubber also responds to the need to replace elements such as sand and gravel, which are increasingly less available and which are indispensable for cement mortars, with the advantage of contributing to more elastic final products, less subject to fractures.

These materials always guarantee significantly higher performance than traditional ones. However, an innovative effort is needed. In fact, although many technicians are aware of their potential advantages of replacing traditional materials, they often have not had direct experience in using them or sufficient support to introduce them into their projects and programs. Therefore, a crucial element of Replan is precisely to define simple and effective guidelines based on these available experiences, in the context of an implementation strategy.

Geom Bruno Marabotto Vice President of ETRA, European Tire Recycling Association and Prof. Alessandro Fantilli of the Polytechnic of Turin talked about the development of the European project on the use of recycled tires in the construction, infrastructure, and sports sectors, with extraordinary results in terms of economic and qualitative. In fact, excellent quality rubber powder and textile fibers are obtained from tyres, which are used in asphalt, improving drainage capacity and extending their life up to 2 or 3 times compared to traditional ones. They are often used in sports surfaces, such as athletics tracks or tennis courts, and in public areas for children.

The workshops involved also other Speakers with whom there are good synergies who presented other experiences of recycled materials used in the same fields of applications, such as Innovative and eco-sustainable concretes produced from the reuse of waste materials for circular construction, presented by Prof. Dora Foti Deputy Director of the Department of Architecture, Construction and Design (ArCoD). Full Professor of Construction Technology at the Polytechnic of Bari; Woodcircles European Project “Integrated, circular and digitally supported sustainable solutions for waste minimization and carbon storage in buildings and the construction sector, presented by Eng. Laura Ribotta a local Public Administration Official.

The program also included a presentation of GreendealAVR (ARV Climate Positive Circular Communities). The project is working towards the implementation of climate-positive circular communities in Europe, focusing on net zero-emission buildings and neighborhoods. ARV will provide guidelines and a policy framework for future energy-efficient, circular, and digital solutions in the construction industry.

Re-Plan City Life's participation in Restructura 2023 underscored the valuable role of recycled tire materials in construction for environmental sustainability and economic benefits. As the construction industry evolves, the continued integration of recycled materials signals a promising future for sustainable and environmentally conscious building practices.





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Sustainable Solutions with Recycled Materials at the Building Exhibition "SAIE" in Bari

SAIE is the Italian exhibition that represents the largest community of companies, professionals and associations in the construction sector. This year SAIE recorded the highest numbers ever: 407 companies on display , +64% compared to 2021, and 25,527 visiting professionals (+35%).

SAIE is a strong commercial multiplier for the market, a moment of reflection and comparison for the sector and the reference appointment with the operators of the sector to discover the excellence of the entire construction supply chain, through paths dedicated to the key themes of sustainability, innovation, energy efficiency and digital transformation. The event garnered significant attention with 123 training conferences and 25 special initiatives, as well as the support of 75 trade associations.

In this context, ETRA, in collaboration with ANTEL, organized the workshop: "Circular Economy in Construction for environmental sustainability, research, strategies, innovations and experiences on the reuse of recycled materials". This national event addressed technicians of both the private and public sector.

The presentations were focused on building application of Recycled Tyre Materials (RTMs), spanning from rubber, steel, and textile ion concrete to thermal and noise insulating products and applications done with the rubber and textile. Also Urban and Sports applications were described as the Fair attracts a really wide spectrum of interests. The workshop was supported by some speakers and partners from the RE-PLAN CITY project.

One of the topics covered during the session was: The use of RTMs in cement-based mortars and in the precast concrete industry. In particular, it was also discussed how to manage new cement-based composites. Prof. Alessandro Fantilli from Politecnico of Turin (partner of Replan) provided insights into the process and revealed valuable findings, such as the increase in strength reduction factor with presence of recycled carbon fibers.

Prof. Dora Foti shared knowledge on the topic of Innovative and eco-sustainable concrete produced from the reuse of waste materials for circular construction. It addressed the challenges, explained also by Fantilli, of the depletion of natural aggregates and need to find replacement. She worked on plastic recycling, with a specific focus on Polyethylene Terephthalate (PET). An Experimental Campaign was conducted to discover best practices for incorporation PET recycled materials into construction products. The tests showed that the inclusion of PET fibers in concrete enhances its ductility. Moreover, PET bars can be employed as alternatives to welded or reinforcing steel links in conditions with high humidity and steel corrosion issues.

Prof Bruno Marabotto revealed the topic of the use of recycled rubber in sports facilities and artificial grass fields, potential and contradictions, which is a common concern. Dr. Ettore Musacchi continued the discussion with another promising application: panels for thermo-acoustic insulation with recycled textile fibers. The growing need for isolation presents new challenges, and using recycled textile fibers from tyres is one of the solutions. Various products and their technical characteristics were described, along with applications of rubber mortar for these purposes, accompanied by examples and works carried out.

This enlightening session provided a platform for specialists and manufacturers in the industry to not only share valuable knowledge but also to discuss practical experiments, tests, and working solutions while considering all the associated advantages and challenges.

Among the speakers there was also Dr. Sergio Saporetti, an Officer of the Italian Ministry of the Environment committed to the preparation of the Green Public Procurement for the building sector. They analyzed the mandatory criteria and contractual clauses of the Minimum Environmental Criteria for constructions.

The workshops allowed a lively interaction among speakers and participants who shared their experience and willingness to cooperate on expanding best practices. The RE-PLAN CITY project was also presented, as it combines many discussed topics revealed at SAIE and aims to use recycled tyre materials in diverse areas of the city's infrastructure.

More information about the event: <https://www.saiebari.it/en/>





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Innovative use of Recycled Materials in Road Pavements: A Spotlight on the Warsaw Conference "Modern road pavements 2023"

The RE-PLAN city life project attended a conference on Modern road pavements, and we are ready to share the experience with you. "MODERN ROAD PAVEMENTS - Recycling in road pavement structures" 2023 was held on the 18th of October in Poland, in Warsaw.

The Conference is an excellent opportunity for all manufacturers and professionals in the field of road infrastructure, that's why it was attended by more than 100 participants from industry, Universities, Research Organisations, and Public Bodies. Among the discussed topics were asphalt mixtures with recycled materials, road pavement structures, pavement rehabilitation, and how to make components more ecological.

Why is recycling becoming a necessity for infrastructure projects in the construction industry? The circular economy forces manufacturers to reduce the consumption of natural resources, and recycling in road construction is a game-changer in this case. It's not only eco-friendly but also a smart way to save materials and energy. The consumption of materials (e.g., aggregates) is significant, and the production, transportation, and construction processes require a lot of energy.

The application of recycling is highly beneficial in constructing new roads and in repairs and reconstruction. It even helps repurpose waste from other industries. Moreover, recycling can potentially be applied to the subbase and lower and upper pavement structural layers.

However, making it happen depends on regulations and technical requirements. Researchers and construction companies must get creative, research, and assess the economic and environmental aspects. That's why disseminating knowledge to all participants in the construction process is the key to success.

RE-PLAN CITY LIFE project aims to raise awareness about the Circular Economy opportunities for tyre recycling materials on roads, especially in rubberised asphalts. That's why ETRA was kindly invited to attend, make a presentation, and share many years of experience with the RE-PLAN CITY LIFE project.

Why is this profitable method still rare among contractors?

Rubberised asphalt has been demonstrated as technically viable and more sustainable through experiences and demonstrations in many countries, confirming their feasibility and benefits. Recycled rubber plays a crucial role in enhancing the performance and durability of road asphalts. It can be incorporated in two primary methods: the wet method, involving adding powdered recycled rubber to hot bitumen, and the dry method, where rubber granulate is directly mixed with aggregates. The specific approach chosen depends on the process and mix design, allowing for the optimization of various performance aspects.

The first documented application of this technique dates back to the 1950s in the United States. This pioneering method has continued to gain momentum due to its significant success in enhancing performance. In contrast, Europe has slowly embraced these innovations and moved beyond demonstration projects. Nevertheless, initial efforts to introduce this technology in the 1980s have played a pivotal role in raising awareness and cultivating technical expertise in various European countries.

Collaborating with RECYKL

Despite the promising potential of these applications, they have not yet gained widespread implementation as they should, mainly due to persistent resistance and various obstacles.

RE-PLAN CITY LIFE conducted an analysis to identify the main obstacles to using Recycled Tyre Materials (RTMs) in Roads and Transport Infrastructures as well as solutions to be promoted and implemented through the project. We described them in detail, clearly showing the current situation and future scenarios. The presentation also included recent innovation developments by the company RECYKL about using recycled textile in road applications in Poland.

For the first time, waste textile resulting from tire recycling has transformed into a professional-grade product for road construction as a stabilizer and dispersed reinforcing additive. This development marks the completion of the ELT recycling cycle, enabling nearly 100% tyre recycling.

Large-scale production has started in Chełm, Poland, with support from the Engineering Procurement Contracting and Commissioning (EPCC) company Zeppelin. Any player worldwide has the opportunity to establish such a factory and provide standardized products to road construction companies.

The product enhances resistance to rutting, fatigue, and cracking, as well as water and temperature effects. During the event, the poster session was held, where Ir. Zaprzalski from RECYKL elaborated on the advantages of incorporating textiles in road construction. In this context, the diverse opportunities and innovations already developed and tried within the sector were observed. However, these advancements often appear fresh and unverified because of limited information and networking among key market participants. RE-PLAN CITY LIFE is committed to breaking this cycle by disseminating valuable insights and increased awareness about recycled tyre materials.



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RE-PLAN project meeting in Turin: Sharing the results of workshops on RTMs in Building construction and Rubberized asphalt

It's time to share the results of the meeting in Turin, Italy, on September 28th and 29th, 2023. Thirty-four persons from 8 countries attended the Turin Project meeting and the two workshops.

The first day started with the RE-PLAN CITY official project meeting and the Workshop on Rubberised asphalt, which concluded with a fruitful round-table discussion. Participants, including manufacturers and contractors, actively engaged in discussions about current industry challenges and potential solutions.

We were confronted with a question regarding Rubberized Asphalt. What is the actual situation in Europe? Costis Keridis, with extensive experience in road infrastructure, shared his valuable insights. What are the contractors' myths about rubberized asphalt? The primary concerns are the ruining bitumen storage tanks, the necessity of special equipment, and the that the Asphalt mix blend design cannot be varied. These seem to be very simple excuses. However, the reality is different: Plant production reduction by approx.30% or Application cost is similar to other modified mixes (SBS,ECA etc). After considering all available information, we can conclude that the benefits of rubberized asphalt are many and they include reduced thermal cracking, rutting, ice disbonding, and increased aging resistance, flexibility, and raveling. This is only a portion of the complete picture described during the workshop.

On the 29th, during the Recycled Tyre in Building Construction workshop, participants had the opportunity to visit the Concrete Structure Labs. We observed diverse materials, such as recycled steel fibers in concrete, recycled aggregate in concrete, touched recycled steel fibers and recycled textile fibers with our hands. We walked through the entire laboratory and studied in detail the stages and process of testing materials, so we gained a comprehensive understanding of the manufacturing processes.

Following this, a series of presentations and lively discussions took place. The question of whether rubber and concrete can be combined was addressed by Johan Engdahl of Rubber Concrete, who presented compelling possibilities. Many experiments were showcased, revealing considerable experience and innovative products. During the presentation, product samples were provided, allowing attendees to touch and try them for a hands-on experience. Making tires into concrete is a new technology. However, the process, obstacles, and solutions were described in detail during the entire production phase. A significant portion of these applications is designed for horsekeeping, offering ecological and improved conditions for horses.

Steel Fibers and Recycled Aggregates in Concrete mix. Ing. Corrado Barbero from BOTTA described the cautious approach to this process. Manufacturers know there are some difficulties in using recycled products, such as their confrontation and a tendency to stick to the operators' clothing. However, this issue was solved by implementing special equipment, making it possible to distribute the quantity of fibers required for the chosen mixture within the mix. Overcoming these technical difficulties, we can improve concrete characteristics to such an extent that a certain amount of iron's bars that was previously necessary can be eliminated.

We also discussed other topics in the recycled materials sector, such as RTMs in Concrete and Cement-based applications and optimizing tyre rubber-concrete formulations for scaling up to lightweight paving applications.

We want to express our gratitude to all the speakers:

Ing. Marco Benso from Città Metropolitana “Rubberised Asphalt the cautious approach of the Public Administrations and the role to play.”

Sabina Nicoletta from Fondazione Ecosistemi “How to overcome the obstacles: the role of Replan project”

Ricardo Ayala from Flexofibers “Recycled steel fibres in on-site applications.”

Prof. Marco Valente, Dr. Matteo Sambucci from La Sapienza University “Optimizing tyre rubber-concrete formulations for scaling-up to lightweight paving applications.”

José Lucas from ITeC “The steps to implement the GPP”

