

POLYTECHNIC

I t c f d g p k – v x q l.č. ok p " c t j k v g m v w t c . "
1000 LJUBLJANA, M q r c 8, tel.: 01 426-92-14

TM v 0 " g n 01d 2011 c v c " <

Objekt :

Gradnja vrtca TM g p v G p k q v. č " O t c x n l k p g m

Investitor :

MOL, O g u v p c " q d k p c " N l Ljubljana c p c . " O g u v p k " v t i " 3

Projektiranje :

Arhe, d.o.o., fi k f q x u m Ljubljana g | c " 6 .
– v 0 " r t 85/2010 m. PGD " < "

Q E G P C " " \ X I Z O L A G I J E'

Vsebina :

A. Uvod

B. Vpliv zunanje hrupa in ukrepi

C. Ocena z x q e izpolacije n q k n p k j " m q p u v t w m e k l

R g v g t 'č.č. i a. t i k . "
POLYTECHNIC
Gradbeništvo in arhitektura d.o.o., Ljubljana


Ljubljana, februar 2011

A. Uvod

X " m q p m t g v p g o " r t k o g t w " i t g " | c " f x g " v k r k p c " r a 0 " | x q p c " **vplivi-zunanjega hrupa** "sleđ" obremenitev s prometom dveh lokalnih cest ter pred vplivi hrupnosti pri parkiranju vozil ob objektu

b 0 " | x q p c "vplivi hrupakvsa me'mrojektuf: "x r n k x k zVoka**potraku p l c op.:**

- *vpliv udarnega zvoka v konkretnem primeru ni prisoten, ker objekt nima*

o g f g v c f p k j " m q p u v t w m e k l 0

- *ing f g " v 0 k 0 " i t c f d g p g " c m w u v k m g " * x r n k x k " r q f " v 0 " C l d 0 + " gre v konkretnem primeru le za*

x g t v k m c n p g " n q k n p g " m q p u v t w m e k l g . " v q t g l " u v g p g 0 "

\ x q p c " | c - k v a s l e d n j i h z a h t e v a h l : g m v k t c p c " r q "

- **R t c x k n p k m " " q " | * x w t 0 p r k 0 " | T c U - " k w k " " 3 u 6 l c x d + "**

- **W t g f d c " q " j t w r w " x " p c t c x (p r g . R S ' k p 0 ' f l k x h : l g p u m g o**

- **W t g f d c " q " j t w r w " | c t . p r o n k e t a e W u 0 p g i T U k p v f l g u g | p**

- **Standard DIN 4109/1989** - \ x q p c " | c - k v c " x " x k u q m q i t c f p l k p " t c w p u m k " r q u v q r m k 0

- **Standard DIN 18005** ó O g v q f q n q i k l c " | c " k | t c ó r a v p 0 " x o r g n v k a x f c g

B. Vplivi zunanjega hrupa in ukrepi

a. Vpliv hrupa prometa dveh lokalnih cest in | w p c p l k j " r c t m k t k - "

Za lokacijo predmetnega objekta niso bile iz x t - m e p i t y e z u n a n j e h r u p n o s t i , n i t i n e

q d u v c l c " p g m c " r t q o g v p c " - p r g w f f r k k l u c c " p k q | " " a n g c v v q g f t q g n " q c

nati x t g f p q u v " g m x k x c n g p v p g " k o k u k l u m g " t c x p k " j

Obe lokalni cesti, Martinova pot in Tratnikova ulica predstavljata dokaj nizek vpliv

hrupnosti (lokalni promet). P g m q n k m q " i c " r q x x q g | k w n l " g p q " " r a g m k t

r c t m k x k g i c " e e c " 4 7 " r c t m k t p k j " o g u v . " m k " u q " r

g " w r q - v g x c o q . " f c " l g " v g j " r c t m k t p k j " o g u v " :

hrupnost tega izvora lahko p c " d q f q k " l p r e d s t a v l j a p v k e d n o s t d L e q p r k a p 6 l "

dB(A). R c t m k t k - c " u " u x q l q " n q m c e k l q " r t g f u v c x n

kjer se nahajajo za hrup ne q d w v n l k x k " r t v q f u k v " q | t d k . f a x g q f - g p t g " i f t

tore (uprava). Igralnice, ki za vplive hrupnosti predsta x n l c l q " j a v p r o s t o r " s q d w v

n q e k t c p g " (v t u q - v o d k T r a t n i k o v e t u l i c e (j u g o v z h o d) j e f a s a d a i g r a l n i c o d d a l -

jena min. 60 m. X " l w f l p g o " f g n w " q d l g m v c . " m k " l g " q f " V

p c j c l c " v 0 k 0 " - g r " q | t c v " p x r " r k k i x t g c " n j p t k v e r c p . q " u v k k " l d k u v g x

X r n k x k " j t w r p q u e h o d o g l e d e q n a p o z n a v a n j e g l o k a l n e g a p r o m e t n e g a

t g f l r k a o b e h d q f q k j " h c u a f f p k v f r e d n o s i k : p k p c j

Leq = max. 67 dB(A) na zahodni fasadi - pri tej vrednosti je w r q - v g x c p c " e q v w f k " x

p c u n q x c " **Leq = mak. 60 dB(A)** na " v l o k o p n i " strani (fasadi).

d 0 " F q n q k v g x " | x q p g " k | q n c e k l g " q m g p "

R q o g o d p c " l g " f q n q k v g x " | x q p g " k | q n c e k l g " p c
fasadah je glede na funkcijo p t q u v q t q x " | x q lapko d k u q g x p k l o č g h g

- zahodna fasada (vpliv hrupa na delovne prostore)

Iz podatka $Leq = \max. 67 \text{ f D} * C + " k p " f q n t a p . 8 \text{ k h a j a " n a s k d j e : } 6 \text{ } 3 \text{ } 2 ; " 1$

W r q - v g x c " u g " h r u p a I V q 6 6 - 7 0 " d B (A) i n q u b r i k a 5 (delovni prostori), kar
pogojuje vrednost $T_{\text{vask}} = \min. 35 \text{ dB}$ (skupna vrednost za fasadno steno).

- vzhodna fasada (vpliv hrupa na igralnice)

Iz podatka $Leq = \max. 60 \text{ f D} * C + " k p " 4 1 0 9 \text{ m a t . } 8 \text{ k h a j a " n a s k d j e :}$

W r q - v g x c " u g " h r u p a I V q 5 5 - 6 0 " d B (A) i n q u b r i k a 4 (spalnice), kar
pogojuje vrednost $T_{\text{vask}} = \min. 30 \text{ dB}$ (skupna vrednost za fasadno steno).

Q e g p c " | x q p g " k | q n c e k l g " u v g p g " R w t g n i n . 5 2 d B p c " r c

m c t " x g n l c " | c " r t k o g t " | c j q f p p r e d s t a v l j a j o p o l n o , z a t k " x

l k j " w r q - v g x c o q " m q v " g f k p q " d c t k g t q " * u m w r p q "

I n g f g " p c " p c x g f z a h p d n i " s t e n i l v q d k v g x c ' o r q t ' k p c l x g l g "

prostora, ki v tem primeru predstavljajo 38 % skupne fas. r q x t P o k a p t e g a n i v t a b . 1 0 ,

DIN 4109, mora r t k " u v g p k " | " w l x n i n . 4 0 d B , i n e t i o p m o t e v e l i k o s t i " T

| x q p q " k w t g n i n 3 0 d B k l q " T

R t k " x | j q f p k " u v g p k " * r t g v g f l p q " q m p c + e ' n a t g " |

ugotovitev : $T_{\text{vask}} = \min. 30 \text{ f D} " k o g v k " g p c m q " | w t g 3 0 d B q " k | q n c e k$

M g t " l g " v q " t g n c v k x p q " o c l j p c " x t g f p q u v " - k p " l q

t q c . " f c " k o c l q " q m p c " p c " x | j q f p k " k p R w t g j 0 " h

min. 32 dB.

M c t " | c f g x c " l w f l p q " k p " u g x g t p q " h c u c f f D p " q p k u f l v l g q p

x t g f p q u v . " x g p f c t " p c l " u g " | c t c f k " o c l j p g " u g

| x q p c " k | q n c e k l g " u v g p g " R w t g n i n 3 2 d B . " v q t g l " < " T

Pri tem je potrebno poud c t k v k . " f c " o q t c " d k v k " r q " f q n q k n

u v c x d . " | x q p c " k | q n c e k l c " q m g p . " k | 3 4 d B l o g p c " x

i t g " v q t g l " | c " r q x g c p q " x t a d n i o k n o z a n e s l j v o m o g o t c i q v c

c p r o j e k t p q " f q n q g p w t g 3 2 d B . g f p q u v " T

X " u m n q r w " q d q f p k j " m q p u v t w m e k l " q d u v c l c l q " v w

| p c - c " o k p . F i n a l i z a c i j a " t e m k o n s t r u k c i j p r e d s t a v l j a k o n t a k t n a s l o j n o s t , k i j e

v k r k p c s t r e h e c N a v e d e n a k o n s t r u k c i j a p o m e t o d o l o g i j i o c e n j e v a n j a D I N 4 1 0 9

| c i q v c x n l c " | x q p q w t g n i n 5 2 c f d B k . l " q n " c x t " " x | t c g f f q p u q v u v l k g " "

predpisani zahtevi, ki je enaka kot za fasadne (vertikalne) konstrukcije ómin. 40 dB.

C. Q e g p c " | x q p g " k | q n c e k l g " n q k n p k j " m q p u v

V konkretnem primeru gre le za stenske konstrukcije in sicer :

a. n q k n p c " u v g p c " o g f " k i t c n p k e c o k "

b 0 " n q k n p c " u v g p c " o g f " k i t c n p k e q " k p " r t q u v q t c

c. n q k n p c " u v g p c " o g f " f g n q x p k o c " r t q u v q t q o c " *

Zahteve po $R_{t,c} x k n p k m w t i s t a v b / * x W q t 0 p n k 0' / T c U$ -. " k - v 0 " 3 6 1 ; ; + " <

a. $T_{\varnothing} = 46$ dB,

b. $T_{\varnothing} = 52$ dB (v konkretnem primeru igralnice ne mejijo na prostor za druge

p c o g p g " * j q f p k m " c n k " u c p k v c t k l g " p g " - v g l

c. $T_{\varnothing} = 42$ dB

Ad a. :

N q k n p g " u v g p g " o g f " k i t c n p k e c o k " u q " c t o k t c

q e g p l g x c p l c " | x q p g " k | q n c e k l g " * r q 460 kg/m³ " 6 3 2 ;

k p " m q v " v c m c " | c i q w e m i n 52 dB. (zahteva : min 46 dB) q n c e k l q " T

X " u v g p c j " u q " r t g f x k f g p g " q f r t v k p g " | c " m c u p l

R q n p k n p k " o c v g t k c n " v g " u v g p g " r t g f u v c x n l c " o

d q f q " u k e g t " q o g v c p g " v w f k " d g v q p u m g " r q o d t - k p g

(2x 2.5 cm) z p c m i n. 290 kg/m² k p " u " v g o " | x q = m i n 48 dB. (zahteva : e k l q " "

min. 46 dB).

Q d u v c l c " v w f k " f t w i c " o q f l p q u v " | c r q n p k v x g " r t

fazi PZI in sicer - polnila stena se izdelava po principu lahkega mo p v c f l p g i c " r q n p

u k u v g o w " M p c w h " c n k " v g z j e b. 20 cm q " c g p o m q x k n g f p g d o " c

izolacijo v vrednosti $R_w = 56$ dB. V tem primeru se na a.b. stene namesto ometa vgradijo

v q m q x p q " - m g c r t n v l q g p u g n " g i " k r r n u q - g 0

Ad b 0 " " N q k i g r a d n i c a"/ prostor pa glruge namene, ne obstajajo

Ad c. :

N q k n p c " u v g p c " o g f " r k u c t p c o k " w r t c x g " l g " k | x

q d q l g u v t c p u m k o " q o g v q o " f " ? " 4 0 7 " e o 0 " U m w r p c "

Ad a. (torej 290 kg/m² + " k p " r q " q e g p k R_w = k i n. 48 dB (zahteva : 46 dB) - c "

R g v g t , ũ. ũ i a. t i k

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